

# **2018 IEEE International Power Electronics and Application Conference and Exposition (PEAC 2018)**

**Shenzhen, China  
4-7 November 2018**

**Pages 1-637**



**IEEE Catalog Number: CFP1836Y-POD  
ISBN: 978-1-5386-6055-3**

**Copyright © 2018 by the Institute of Electrical and Electronics Engineers, Inc.  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

***\*\*\* This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP1836Y-POD
ISBN (Print-On-Demand):	978-1-5386-6055-3
ISBN (Online):	978-1-5386-6054-6

**Additional Copies of This Publication Are Available From:**

Curran Associates, Inc  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: (845) 758-0400  
Fax: (845) 758-2633  
E-mail: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

# TABLE OF CONTENTS

---

<b>Minimizing Reactive Power for LCL-T Converter in Multi-pickup Inductive Power Transfer System</b> .....	1
<i>Donghao Wu, Bernd Ackermann, Jan Abraham Ferreira</i>	
<b>An Optimization Design of the Moveable Ball-Shaped Coil Used for Wireless Charging</b> .....	7
<i>Yang Yang, Wenjie Chen, Liyu Dai, Rui Wang, Mohamad Abou Houran</i>	
<b>Analysis and Design of Class-E ZVS Inverter with Parallel Circuit for MHz Wireless Power Transfer</b> .....	11
<i>Xiaosheng Huang, Fenqiang Liang, Yipeng Kong, Shuyi Lin</i>	
<b>Interoperability Analysis of Compensation Network in Electric Vehicle Wireless Charging System</b> .....	16
<i>Yanjie Guo, Yuwang Zhang, Bingrong Yan, Ke Wang, Zhenjun Zhang, Lifang Wang</i>	
<b>A Three-bridge Topology for Constant Current and Constant Voltage Output in IPT System</b> .....	20
<i>Ming Li, Guo-Rong Zhu, Jiang-Hua Lu, Wen-Jing Li, Bo Li, Bing-Yang Luo</i>	
<b>Modeling and Analysis of Capacitive Wireless Power Transfer Systems: A Network Approach</b> .....	25
<i>Eli Abramov, Mor Mordechai Peretz</i>	
<b>New PCB Winding "Snake-Core" Matrix Transformer for Ultra-Compact Wide DC Input Voltage Range Hybrid B+DCM Resonant Server Power Supply</b> .....	31
<i>G. C. Knabben, J. Schäfer, L. Peluso, J. W. Kolar, M. J. Kasper, G. Deboy</i>	
<b>Analysis on Two Structures of Interleaved LLC Converter</b> .....	37
<i>Xiangjun Zhang, Dibin Zhou, Xiufang Liu, Yijie Wang, Dianguo Xu, Hailin Tian</i>	
<b>A Current-feed Single-switch Resonant Converter with Constant Frequency Operation</b> .....	42
<i>Tao Ma, Yuning Li, Ting Qian</i>	
<b>An LLC Converter Operating in Super-Wide Output Voltage Range with Variable-Mode Control Strategy</b> .....	47
<i>Xiaoyan Wu, Zhihong Bai, Hao Ma</i>	
<b>Re-examination of ZVS Condition for MHz LLC Converter Operating at Resonant Frequency</b> .....	53
<i>Wei Qin, Le Zhang, Xinke Wu</i>	
<b>A Practical Analytical Small Signal Mode Applied for the LLC Converter Based on Hybrid Hysteretic Charge Control</b> .....	57
<i>Richard Yang, Brent McDonald, Yalong Li</i>	
<b>Lyapunov Controlled Boost PFC Converter Using D-Q Coordinate Transformation</b> .....	65
<i>Shaoling Li, Weiguo Lu, Shidong Yan, Zhaoyang Zhao, Luowei Zhou</i>	
<b>A New Parallel Compensation Control Strategy of Power Factor Corrector without Electrolytic Capacitor by Power Decoupling</b> .....	69
<i>Liqiao Wang, Haixu Wang, Shumin Cui, Mei Chen, Hong Shen</i>	

<b>A New Energy Management Method for High Power Density Boost Cascaded Buck-Boost PFC Converter</b> .....	75
<i>Chao Zhang, Xin Yin, Sai Tang, Daming Wang, Ruqiang Zhen, Z. John Shen, Jun Wang</i>	
<b>An Optimal Compensation Research of 220V/400W PFC Boost Converter</b> .....	79
<i>Yingna Guo, Weibin Cheng, Mingquan Leng, Xiaofan Wang</i>	
<b>Operation of Combined HF and LF Boost Stage Inductors in PFC Design</b> .....	84
<i>Ken King Man Siu, Carl Ngai Man Ho</i>	
<b>Three-Phase Two-Phase Clamped Boost-Buck Unity Power Factor Rectifier Employing Novel Variable DC Link Voltage Input Current Control</b> .....	89
<i>David Menzi, Dominik Bortis, Johann W. Kolar</i>	
<b>A Novel Simplified Space Vector Modulation Algorithm for Multilevel Converters</b> .....	97
<i>Hongda Wu, Jinjun Liu, Shaodi Ouyang, Yan Zhang, Xingxing Chen, Shuguang Song</i>	
<b>Coordinated Optimization of Capacitor Voltage Ripple and Current Stress Minimization for Modular Multilevel Converter</b> .....	102
<i>Ang Li, Lei Lin, Chen Xu, Shirong Yang</i>	
<b>Circulating Current Suppression for Modular Multi-level Converters with Direct Digital Control</b> .....	108
<i>T.-F. Wu, T.-C. Chou, J.-W. Huang, K.-E. Lin, T.-Y. Li, Kai Sun</i>	
<b>Multistage Model Predictive Control for Modular Multilevel Converter</b> .....	113
<i>Peng Guo, Yan Li, Zhixing He, Yufei Yue, Qianming Xu, An Luo</i>	
<b>A Novel Five-Level Inverter and Its Optimal Modulation and Control Method</b> .....	118
<i>Shuai Zheng, Rui Li, Jiatao Yang, Wei Yu</i>	
<b>Towards a 99.5% Efficient All-Silicon Three-Phase Seven-Level Hybrid Active Neutral Point Clamped Inverter</b> .....	125
<i>J. Azurza Anderson, E.J. Hanak, L. Schrittwieser, J. W. Kolar, G. Deboy</i>	
<b>Fault Analysis of Traction Power System in Urban Rail Transit</b> .....	132
<i>Jingda Gu, Xiaofeng Yang, Trillion Q. Zheng, Miao Wang</i>	
<b>A 25kW SiC Universal Power Converter Building Block for G2V, V2G, and V2L Applications</b> .....	138
<i>Xiaorui Wang, Yunting Liu, Wei Qian, Bingsen Wang, Xi Lu, Ke Zou, Nomar González-Santini, Ujjwal Karki, Fang Z. Peng, Chingchi Chen</i>	
<b>Vehicle-to-Grid On-Board Charger using SiC MOSFET and High Frequency Coaxial Transformer</b> .....	144
<i>Junwei Lu, Wayne Water, Chirag Panchal, Dale Butler, Foad Taghizadeh, Jahangir Hossain</i>	
<b>Advanced Single-Phase Onboard Chargers with Small DC-Link Capacitors</b> .....	150
<i>Hoang Vu Nguyen, Dong-Choon Lee</i>	
<b>Reducing Extended Magnetic Stray Field in Wireless Charging Systems of Electric Vehicles</b> .....	156
<i>Abubakar Uba Ibrahim, Wenxing Zhong, Hongzhi Cui, Dehong Xu</i>	
<b>Design of High Efficiency Inverter with Air Cooling for Electric Vehicle</b> .....	162
<i>Xiaoyu Jia, Fengchun He, Chao Liu, Changsheng Hu, Yanlin Li, Alexander Boronka, Dehong Xu</i>	

<b>Low Speed Crawling Inhibition Method of the AC Servo System based on Backstepping Control</b> .....	168
<i>Zhonggang Yin, Haizu Jin, Yanping Zhang, Cong Bai</i>	
<b>Speed Estimation Method of Permanent Magnet Synchronous Motor Based on Adaptive Unscented Kalman Filter</b> .....	173
<i>Zhonggang Yin, Fengtao Gao, Yanping Zhang, Jie Hou</i>	
<b>Research On Back-Stepping Control Of Permanent Magnet Linear Synchronous Motor Based On Extended State Observer</b> .....	179
<i>Zhonggang Yin, Yuxiang Gu, Chao Du, Fengtao Gao</i>	
<b>H7 Inverter Using Zener Diode With Model Predictive Current Control for Common-Mode Voltage Reduction in PMSM Drive System</b> .....	184
<i>Won-sang Jung, Kyoung-min Choo, Jun-chan Kim, Woo-jae Kim, Chung-yuen Won</i>	
<b>Robust Predictive Current Control for Permanent Magnet Linear Synchronous Motor Servo System</b> .....	190
<i>Zhonggang Yin, Cong Bai, Yanping Zhang, Yuxiang Gu</i>	
<b>An Improved Model Predictive Control Method for Induction Motor Drives Fed by Indirect Matrix Converter</b> .....	196
<i>Yang Mei, Liang Wang, Weichao Huang</i>	
<b>iBreaker: Intelligent Tri-mode Solid State Circuit Breaker Technology</b> .....	201
<i>Yuanfeng Zhou, Yanjun Feng, Z. John Shen</i>	
<b>An Assembly High Voltage DC Circuit Breaker Based on Pre-charged Capacitors</b> .....	208
<i>Dajun Ma, Wu Chen, Han Ye, Chengyang Xue, Pengpeng Pan, Xu Zhu</i>	
<b>A Novel Hybrid DC Circuit Breaker Based on Precharged Capacitors</b> .....	212
<i>Han Ye, Wu Chen, Pengpeng Pan, Chengyang Xue, Syed Waqar Azeem, Xu Zhu</i>	
<b>Analysis, Modeling and Simulation of Multi-terminal HVDC Transmission System with Short-circuit Controllable Fault Current Limiter</b> .....	216
<i>Chaoran Zhuo, Xiaotian Zhang, Xiong Zhang, Xu Yang</i>	
<b>Application of Tunnel Magnetoresistance to Health Monitoring of Modular Multilevel Converter Submodules</b> .....	222
<i>Naipeng Yu, Shuai Shao, Xinke Wu, Junming Zhang, Hui Chen</i>	
<b>Research on Topology and Control of Household Energy Routers Based on Direct AC/AC Power Electronic Transformer</b> .....	227
<i>Xuan Guo, Zedong Zheng, Chunyang Gu, Yongdong Li</i>	
<b>High-Frequency-Link Isolated Modular Multilevel Converter (I-M2C) Topology</b> .....	233
<i>Chuang Liu, Chao Liu, Renzhong Shan, Yibo Wang, Zhongchen Pei, Hong Ying</i>	
<b>Multiple Voltage Vectors Model Predictive Current Control for Single-Phase Cascaded H-Bridge Rectifiers</b> .....	239
<i>Wei Jiang, Wensheng Song, Junpeng Ma, Bi Liu</i>	
<b>Modeling and Control of Three-Phase AC-DC Power Channel based Power Electronics Transformer (PC-PET) with Power Decoupling</b> .....	244
<i>Liqun He, Xiaohui Li, Yong Yang, Yinnan Yuan, Li Tong</i>	

<b>An Optimal-path SVPWM Algorithm with Mutual DC Voltages Balancing Capacity for Three-module Cascaded Multilevel Converter</b> .....	250
<i>Hongjian Lin, Leilei Zhu, Tao Yin, Zuyong Li, Ming Liu, Zeliang Shu</i>	
<b>Study on the Quasi-PR Current Coordinated Control for Active Power Filter</b> .....	255
<i>Maosong Zhang, Jinchao Hu, Xiuqin Wang</i>	
<b>The Role of Power Electronics in Future Low Inertia Power Systems</b> .....	261
<i>Jingyang Fang, Yi Tang, Hongchang Li, Frede Blaabjerg</i>	
<b>An SVPWM Strategy for Multifunction Current Source Converter</b> .....	267
<i>Dong Li, Feng Li, Daojian Rong, Kaihui Zheng, Dongjun Wang, Qiang Li</i>	
<b>A Power Sharing Control Method for Microgrid Consisting of Capacitive-coupling and Inductivecoupling Inverter</b> .....	273
<i>Wen Yang Deng, Ning Yi Dai</i>	
<b>Study On Neutral-point Potential Control for the APF Based on NPC Three-level Inverter</b> .....	279
<i>Maosong Zhang, Tao Wang, Xiuqin Wang, Qunjing Wang, Guoli Li</i>	
<b>Harmonic Balance Methods used in Power Electronics and Distributed Energy System</b> .....	285
<i>Junwei Lu</i>	
<b>Orthogonal Decoupling Control of the Error of a New-Type Phase-Locked Loop under Unbalanced Grid Conditions</b> .....	291
<i>Guangjun Tan, Xiaofeng Sun, Xin Li, Ailing Wang, Ping Wang</i>	
<b>Reliability Calculation Based on Honeycomb Distribution Grid</b> .....	298
<i>Chuang Ruan, Daozhuo Jiang, Yifan Yang, Jiayi Chen, Jietao Chen, Yi Lu, Feng Xu</i>	
<b>A Method for Identifying Major Disturbance Sources in a Regional Grid</b> .....	304
<i>Dandan Feng, Tongxun Wang, Yingying Liu, Shengjun Zhou, Yaqiong Li</i>	
<b>Transient Current Calculation of Grid-Connected Converters under Grid Faults</b> .....	310
<i>Li Liu, Tao Dai, Meng Huang</i>	
<b>Current-Based Analytical Model Derivation to Analyse Fault Effects in 5-Phase PMSM</b> .....	315
<i>D. Diallo, C. Delpha</i>	
<b>Impact of Input Data Scattering on the Reliability Function of a Wind Turbine Power Electronic Converter</b> .....	321
<i>Christophe Olmi, Franck Scuiller, Jean-Frédéric Charpentier</i>	
<b>A Review-based Comparison of Drivetrain Options for Tidal Turbines</b> .....	327
<i>Khalil Touimi, Mohamed Benbouzid, Peter Tavner</i>	
<b>Control Strategies of Five-phase PMSG-Rectifier Under Two Open phase faults for Current Turbine System</b> .....	333
<i>Alioune Seck, Luc Moreau, Mohamed-Fouad Benkhoris, Mohamed Machmoum</i>	
<b>Dual D-q Current Control of FPMSM Based on Six Vector DVSPWM</b> .....	339
<i>Guodong Sun, Guijie Yang, Jianyong Su</i>	
<b>Predictive Current Control for Permanent Magnet Synchronous Motor Based on MRAS Parameter Identification</b> .....	345
<i>Xue Ding, Shuang Wang, Mengxue Zou, Mengqi Liu</i>	

<b>Mission Profile Emulator for Permanent Magnet Synchronous Machine in Voltage-Response Mode Based on Three-phase Power Electronic Converter</b> .....	350
<i>Yubo Song, Ran Cheng, Ke Ma</i>	
<b>Speed Sensorless Control of IPMSM Using Super-Twisted Sliding Mode Observer Based Integral Backstepping Theory</b> .....	355
<i>Woldegiorgis Abebe Teklu, Xinglai Ge</i>	
<b>A Comparative Investigation of SDMPC, FOC, and Bang-bang Control for Induction Motor Drives</b> .....	361
<i>Yongdu Wang, Zhenbin Zhang, Feng Gao</i>	
<b>Single-phase power decoupling technique utilizing Hybrid method with passive and active power decoupling</b> .....	366
<i>Hiroki Watanabe, Jun-ichi Itoh, Quentin Roudier</i>	
<b>Interleaved Flyback Converter with GaN Power Devices</b> .....	372
<i>Guan-shiun Wang, Tsorng-Juu Liang, Jian-Hao Lai, Rui-Wen Zheng</i>	
<b>Research on Digital Simulation Technology of H-bridge STATCOM Based on PSCAD/EMTDC and C language Interface</b> .....	378
<i>Yan Zhang, Kui Liu, Junlin Chen, Jian Liu</i>	
<b>A Novel Voltage-Balancing Control Strategy for CHBR Based on Feedback of the Energy Stored in Capacitor</b> .....	384
<i>Qiwei Lu, Zhixuan Gao, Tao Ru, Cong Wang</i>	
<b>Design and Implementation of a Novel Three Phase Interleaved Integrated Coupling Inductor</b> .....	390
<i>Chung-Yi Ting, Yong-Long Syu, Chen Chen, Yu-Chen Liu, Huang-Jen Chiu</i>	
<b>A Novel Bidirectional DC/DC Converter with Wide Voltage Gain Range for Energy Storage Device</b> .....	397
<i>Zhishuang Wang, Ping Wang, Huakun Bi</i>	
<b>Research on Control Strategy of Bidirectional Isolated AC/DC Matrix Converter</b> .....	403
<i>Yang Mei, Weichao Huang, Ziyu Liu</i>	
<b>A New Bidirectional Three-Phase Phase-Modular Boost-Buck AC/DC Converter</b> .....	407
<i>David Menzi, Dominik Bortis, Johann W. Kolar</i>	
<b>Trapezoidal Voltage Mode for Bidirectional Modular Multilevel DC-DC Converter</b> .....	415
<i>Yang Qiao, Xiaotian Zhang, Xu Yang, Yuqi Duan</i>	
<b>An Isolated Bipolar Modular Multilevel DC-DC Converter with Bidirectional Power Flow</b> .....	420
<i>Yang Qiao, Xiaotian Zhang, Xu Yang, Yuqi Duan</i>	
<b>Research on Symmetrical Fault Tolerant Control of Independent Microgrid based on Adaptive Virtual Impedance</b> .....	426
<i>Huayao Bao, Herong Gu, Xiaohui Dou, Haihan Ou, Mengsi Ma</i>	
<b>A Voltage Stability Control based on Impedance Estimation for the Independent Microgrid</b> .....	431
<i>Lijun Wang, Herong Gu, Haihan Ou, Xiaohui Dou</i>	
<b>Control Strategy for Smoothing the Microgrid Tieline Power Fluctuations Based on Back-to-Back Converter</b> .....	436
<i>Ming Shen, Yafei Chang, Ren Gao, Xiangqian Tong</i>	

<b>Virtual Resistor Based Harmonic Sharing of DC Active Power Filter in Hybrid AC-DC Microgrid</b> .....	442
<i>Hao Tian, Yun Wei Li</i>	
<b>Modeling and Analysis of 2nd Harmonic Interaction for VSC with Transformer under Saturation Condition</b> .....	449
<i>Dongsheng Yang, Xiongfei Wang, Frede Blaabjerg, Yin Sun, Erik de Jong</i>	
<b>Large-Signal Stability Study of Power System in More Electric Aircraft</b> .....	455
<i>Jiawei Chen, Shuaicheng Hou, Chengjun Wang</i>	
<b>Transient Stability Analysis of Grid-Connected VSIs via PLL Interaction</b> .....	461
<i>Jiantao Zhao, Meng Huang, Xiaoming Zha</i>	
<b>Research on Interaction Between AC side and DC side in VSC-HVDC</b> .....	467
<i>Shangning Tan, Xiong Du, Guoning Wang</i>	
<b>Control Strategy of TPC with A Grid Port</b> .....	472
<i>Menglu Deng, Jiang You, Weiyan Fan, Mengyan Liao</i>	
<b>A Novel Conception for HVDC Transmission Capacity Expansion and Its Control Strategy</b> .....	476
<i>Hanqing Zhao, Bo Yang</i>	
<b>Research on the Energy Storage Device of Super Capacitor for Heave Compensation System</b> .....	482
<i>Xiaogang Huang, Tianhao Tang, Meilei Lv, Yizhen Zhu, Qihan Bao</i>	
<b>Fractional-Order PI Controller for DFIG-Based Marine Tidal Current Applications</b> .....	488
<i>Hao Chen, Xiyang Chen, Wei Xie</i>	
<b>Research on the Typical Working Condition of Energy Storage Batteries for a Wave Energy Converter</b> .....	494
<i>Liqiang Zhang, Junyu Lin, Ming Li</i>	
<b>Extremum-seeking Control of Wave Energy Converters using Two-objective Flower Pollination Algorithm</b> .....	500
<i>Zuoyao Sun, Lixun Zhu, Weimin Wu, Aqiang Zhao, Kaiyuan Lu, Frede Blaabjerg</i>	
<b>A SiC Based High Efficiency and Compact Hybrid Converter</b> .....	505
<i>Yang Liu, Ming Xu, Han Peng</i>	
<b>A New SCR-LDMOSFET Embedded P-Region for Electrostatic Discharge Protection</b> .....	510
<i>J. B. Cheng, S. S. Chen, L. Tian</i>	
<b>Digital Control of Hybrid Full Bridge Three-level LLC Resonant Converter Based on SiC MOSFET</b> .....	513
<i>Ying Guo, Zhiqiang Yang, Youwei Yin, Hui Cao</i>	
<b>Design and Implementation of a High-efficiency DC/DC Converter for EVs Charging Basing on LLC Resonant Topology and Silicon-Carbide Devices</b> .....	519
<i>Zhenwei Li, Xu Yang, Yang Li, Jianhua Li, Boshun Zhang, Tong Lei</i>	
<b>Optimizing Switching Performance of Cascode-Light SiC JFET Bidirectional Switch for Matrix Converter</b> .....	525
<i>Olanrewaju Kabir Oladele, Lina Wang, Junyi Yang, Xiangcai Zhang, Haobo Ma</i>	



<b>A Research on Characteristics of Bidirectional Wireless Power Transfer System</b> .....	531
<i>Yuwang Zhang, Yanjie Guo, Bingrong Yan, Ke Wang, Zhenjun Zhang, Lifang Wang</i>	
<b>Multi-objective Optimization of Double D Coils for Wireless Charging System</b> .....	535
<i>Zhichao Luo, Xuezhe Wei, Grant A. Covic</i>	
<b>Parity-time-symmetric Wireless Power Transfer System Using Switch-mode Nonlinear Gain Element</b> .....	545
<i>Yuetao Hou, Minshen Lin, Wenjie Chen, Xu Yang</i>	
<b>An Efficient Hybrid Wireless Power Transfer System with Less Gain Fluctuation</b> .....	550
<i>Xu Chen, Shengbao Yu, River T. H. Li, Xiaobo Yang</i>	
<b>A Strong Misalignment Tolerance Magnetic Coupler for Autonomous Underwater Vehicle Wireless Power Transfer System</b> .....	554
<i>Chunwei Cai, Mu Qin, Shuai Wu, Zi Yang</i>	
<b>Three-Level ZCS Converter Suitable for Medium Voltage DC Distribution Network</b> .....	559
<i>Syed Waqar Azeem, Haifeng Zhang, Lin Zheng, Zhiguang Lin, Wu Chen, Guangfu Ning</i>	
<b>DC/DC Converter with an Integration of Phase-Shift and LLC for Wide Output Voltage Range</b> .....	565
<i>Ken K. F Yuen, Y. P Chai, River T. H. Li</i>	
<b>A Soft Switching Swiss Rectifier Based on Phase-Shifted Full-Bridge Topology</b> .....	571
<i>Xincheng Wang, Binfeng Zhang, Shaojun Xie, Kunshan Xu</i>	
<b>The Current Loop Stability Investigation under Zero Ripple Current Mode Applied for the Interleaved Active Clamp Forward Converter</b> .....	577
<i>Richard Yang</i>	
<b>A Study of Current-Fed ZVS Boost DC/DC Converter using Quasi-Resonant Conversion</b> .....	583
<i>Hung-I Hsieh, Chu-Yin Shen, Ta-Jen Chiang</i>	
<b>Audio Noise-free UPS with Zero-Voltage-Switching Back-to-Back Converter</b> .....	589
<i>Keyan Shi, An Zhao, Jinyi Deng, Dehong Xu</i>	
<b>Design of “EIE” Shape Coupling Inductors and Its Application in Interleaved LLC Resonant Converter</b> .....	595
<i>Yugang Yang, Heng Li, Huaijin Miao, Weiyi Huang, Xiaoyu Sun</i>	
<b>Frequency-Dependent Characteristic of Leakage Inductance in High-Power High-Frequency Transformer</b> .....	600
<i>Jinsong Kang, Kaili Wu, Wei Li, Siyuan Mu</i>	
<b>Design and Implementation of Contactless Power Array Track with Segment-excited Inductively Coupled Structure</b> .....	606
<i>Jia-You Lee, Chih-Yi Liao, Ming-Han Tsai</i>	
<b>Study on Active Vertical Maglev Inductively Coupled Structure for Contactless Rotating Power Transfer System</b> .....	612
<i>Jia-You Lee, Yen-Ting Lee, Chih-Jen Hsieh</i>	
<b>A Novel Magnetic Coupler for Unmanned Aerial Vehicle Wireless Charging Systems</b> .....	618
<i>Chunwei Cai, Shuai Wu, Mu Qin, Zi Yang</i>	

<b>Analysis and Optimization of High Frequency Loss Caused by Non-uniform Magnetic Field</b> .....	623
<i>Haijun Yang, Zengyi Lu, Jinfu Zhang</i>	
<b>Cascaded Predictive Control for Three-Level NPC Power Converter Fed Induction Machine Drives Without Weighting Factors</b> .....	627
<i>Yu Li, Zhenbin Zhang, Marian P. Kaźmierkowski</i>	
<b>Convergence Speed Analysis of Capacitor Voltage Balancing Strategy for MMC with Logic Processed CPS-PWM Scheme</b> .....	632
<i>Leyuan Zhou, Kun Wang, Yan Deng, Yi Lu, Chaoliang Wang, Feng Xu</i>	
<b>Study and Implementation of a Novel Self-Balancing Nine-Level Inverter with Coupled Inductor</b> .....	638
<i>Nai-Ruei Chen, Chi-Shen Wu, Jiann-Fuh Chen</i>	
<b>Implementation of Space Vector Modulation (SVM) for Modular Multilevel Converter Based on Submodule Regroup</b> .....	644
<i>Zhihong Bai, Haoqi Chen, Hao Ma</i>	
<b>Harmonic State Space Modeling and Analysis of Modular Multilevel Converter</b> .....	650
<i>Jing Lyu, Xu Cai, Xin Zhang, Marta Molinas</i>	
<b>Modular Multilevel Converter DC Bipolar Short-Circuit Current Calculation on Discrete-Time Model</b> .....	656
<i>Yongyang Chen, Meng Huang, Xiaoming Zha</i>	
<b>Voltage Fluctuation and Comprehensive Control of Multilevel Power Conditioner for Railway Traction System</b> .....	661
<i>Yifeng Liu, Fujun Ma, Xin Wang, Zhen Zhu</i>	
<b>An Approach to Start a Shaft Generator System Employing DFIM under Power Take Me Home Mode</b> .....	667
<i>Tong Zhao, Dawei Xiang, Yan Zheng</i>	
<b>A High Efficiency Single Stage Bi-directional Battery Charger with Magnetic Control</b> .....	673
<i>Yuqi Wei, Quanming Luo, Si Chen, Qingqing He, Luowei Zhou</i>	
<b>Stability Analysis of Energy Feedback Grid-connected of Composite Energy Storage Electric Vehicle</b> .....	679
<i>Shaojian Song, Yongqian Wu, Bilian Liao, Zheng Wang, Ze Wei</i>	
<b>A New Type of Single-Ended Wireless V2H System with Dual-Active Phase-Shift Control</b> .....	684
<i>Aoto Yamamoto, Hideki Omori, Masahito Tsuno, Junnosuke Nohara, Noriyuki Kimura, Toshimitsu Morizane</i>	
<b>Stray Current and Rail Potential Simulation System for Urban Rail Transit</b> .....	690
<i>Xiaofeng Yang, Hao Xue, Huikang Wang, Trillion Q. Zheng</i>	
<b>Model Predictive for Phase Current of Three Phase Two Level Inverter Considering the Dead Time and Clamping Effect</b> .....	696
<i>Jianyuan Wang, Li Xiang, Lingxian Jia</i>	
<b>A Fast Model Predictive Control with Fixed Switching Frequency Based on Virtual Space Vector for Three-Phase Inverters</b> .....	703
<i>Chao Jiang, Guiping Du, Fada Du, Yanxiong Lei</i>	

<b>Nonlinear Fuzzy Model Predictive Control of a Class of Chaotic Systems .....</b>	<b>710</b>
<i>Weijie Wang, Yongmei Gan, Bin Wang, Xia Zhao, Qian Yang</i>	
<b>Predictive Current Control with Torque Ripple Minimization for PMSM of Electric Vehicles.....</b>	<b>716</b>
<i>Jinsong Kang, Xudong Li, Yusong Liu, Siyuan Mu, Shuo Wang</i>	
<b>De-re-coupling Modulation Method of Double-rising-edge Phase-shifted SPWM for Current-Source Matrix Rectifier .....</b>	<b>722</b>
<i>Zhaoyang Yan, Ming Kang, Chunlei Li, Bingang Wei, Xuwei Song</i>	
<b>A Flexible Control Scheme for Single-Stage DAB AC/DC Converters .....</b>	<b>728</b>
<i>Bochen Liu, Pooya Davari, Frede Blaabjerg</i>	
<b>Adaptive VSG Control of PMSG based WECS for Grid Frequency Response .....</b>	<b>734</b>
<i>Jiangbei Xi, Hua Geng, Geng Yang</i>	
<b>Deep Learning Based Transient Stability Assessment for Grid-Connected Inverter.....</b>	<b>739</b>
<i>Xianghua Yu, Feng Gao, Guangqian Ding</i>	
<b>Centralized Direct Model Predictive Control of Back-to-Back Converters .....</b>	<b>744</b>
<i>Ferdinand Grimm, Zhenbin Zhang</i>	
<b>Sequential Direct Model Predictive Control for Grid-Tied Three-Level NPC Power Converters.....</b>	<b>750</b>
<i>Xiaodong Liu, Zhenbin Zhang, Feng Gao, Margarita Norambuena, José Rodríguez, Ozen Yavas, Ralph Kennel</i>	
<b>Cascaded Model Predictive Control of Three-Level NPC Back-to-Back Power Converter PMSG Wind Turbine Systems.....</b>	<b>755</b>
<i>Zhufeng Cui, Zhenbin Zhang, Qifan Yang, Ralph Kennel</i>	
<b>Local Voltage Control Strategy Based On Remaining Capacity of PV Grid-connected Inverter .....</b>	<b>761</b>
<i>Boli Liu, Xiangqian Tong, Minghang Zhong, Xiaoqing Zhang, Jun Deng</i>	
<b>Two Impedance-Network DC-DC Converters Based on Switched-Capacitor Techniques .....</b>	<b>766</b>
<i>Zhiyang Wang, Guidong Zhang, Sizhe Chen, Yun Zhang</i>	
<b>Development and Characterization of Resonant Capacitors and Inductors for Switched Tank Converters .....</b>	<b>771</b>
<i>John Bultitude, Yoshihiro Saito, Abhijit Gurav, Jim Magee, Allen Templeton, Nathan Reed, Reggie Phillips, Mark Laps, Kunihiro Kusano</i>	
<b>Analysis of Basic Structures of Interconnected Converters for Single-Input Multiple-Output Applications .....</b>	<b>777</b>
<i>Xiaolu Lucia Li, Zheng Dong, Chi K. Tse</i>	
<b>Fast Unloading Transient Recovery of Buck Converters Using Series-Inductor Auxiliary Circuit based Sequence Switching Control .....</b>	<b>783</b>
<i>Zhaoyang Zhao, Weiguo Lu, Junwen Ma, Shaoling Li, Luowei Zhou</i>	
<b>Stability Analysis of Digital Voltage Ripple-based Controlled Buck Converter with Dual-edge Constant On-time Modulation.....</b>	<b>788</b>
<i>Qiming Hu, Guohua Zhou, Hongbo Zhao, Xianbi Wei</i>	
<b>A MHz Regulated DC Transformer with Wide Voltage Range.....</b>	<b>794</b>
<i>Tianji Liu, Yue Han, Xinke Wu, Shu Yang, Gang Xie</i>	

<b>Study on the Effect of Ferrite Layers in a Wireless Charging System with Automotive Chassis</b> .....	798
<i>Wenxing Zhong, Hongzhi Cui, Hao Li, Abubakar Uba Ibrahim, Dehong Xu</i>	
<b>High Efficiency Resonant Coil Design for Wireless Energy Transmission System</b> .....	804
<i>Wei Yao, Yunhu Yang, Jiaxing Du, Wei Wang, Chen Li, Bin Zhang</i>	
<b>Primary Control Strategy of Magnetic Resonant Wireless Power Transfer Based on Steady-State Load Identification Method</b> .....	809
<i>Peikun Zheng, Wanjun Lei, Fenghua Liu, Rui Li, Chunhui Lv</i>	
<b>A Harmonic-considered Time Domain Model of LCC Compensated Wireless Power Transfer Systems</b> .....	814
<i>Xiaoming Zhang, Tao Cai, Shanxu Duan, Hao Feng, Hongsheng Hu, Jintao Niu</i>	
<b>A New Type of High-Power Wireless Power Transfer with a Superimposed Communication by a Phase-Shifted Synchronous-Rectifier</b> .....	819
<i>Tatsuya Takahashi, Hideki Omori, Toshimitsu Morizane, Noriyuki Kimura</i>	
<b>A Miniaturized Single-Ended Wireless EV Charger with New High Power-Factor Drive and Natural Cooling Structure</b> .....	824
<i>Junnosuke Nohara, Hideki Omori, Aoto Yamamoto, Noriyuki Kimura, Toshimitsu Morizane</i>	
<b>Vulnerability Analysis of Multilevel Converter Based on Markov Process Model</b> .....	830
<i>Zexin Chen, Dongyuan Qiu, Bo Zhang, Fan Xie</i>	
<b>Model Predictive-based Fault-tolerant Control for Modular Multilevel Converters Without Redundant Submodules</b> .....	836
<i>Kunshan Xu, Shaojun Xie, Xincheng Wang, Binfeng Zhang, Shenyiyang Bian</i>	
<b>A Combinational Power Circuit-based Submodule Topology for MMC With Shoot-through and Self-balancing Capability</b> .....	841
<i>Kunshan Xu, Shaojun Xie, Xincheng Wang, Binfeng Zhang, Shenyiyang Bian</i>	
<b>Active Thermal Control of Hybrid MMC Under Over-Modulation Operation</b> .....	846
<i>Jing Sheng, Haoge Xu, Wuhua Li, Xiangning He, Lei Lin, Jiabing Hu, Shan Li</i>	
<b>A Modular Multilevel DC-DC Converter with Self Voltage Balancing and Soft Switching</b> .....	852
<i>Changjiang Sun, Xu Cai, Jianwen Zhang, Gang Shi</i>	
<b>An Optimization Method for Minimizing the Submodule Capacitance of Modular Multilevel Converter</b> .....	858
<i>Xiao Han, Yuxin Chen, Rui LI, Bing Pan</i>	
<b>Fault Tolerant Model Predictive Control for Indirect Matrix Converter with Fault Identification</b> .....	864
<i>Weizhang Song, Xiaobin Du, Jiang Liu, Patrick Wheeler, Youyun Wang, Daqing Gao</i>	
<b>Online E-Cap Condition Monitoring Method Based on State Observer</b> .....	870
<i>JinLei Meng, Eric-Xu Chen, Steven-JunJie Ge</i>	
<b>Turn-to-Turn Short Circuit of Motor Stator Fault Diagnosis in Continuous State Based on Deep Auto-Encoder</b> .....	876
<i>Botao Wang, Kexing Xu, Tingting Zheng, Chuanwen Shen</i>	
<b>Thermal Network Parameter Extracting Method for Press-Pack IGBT Junction Temperature</b> .....	881
<i>Siyuan Fan, Zhibin Zhao, Chouwei Ni, Xiang Cui, Jinyuan Li</i>	

<b>Accurate Lifetime Predication of Aluminum Electrolytic Capacitor Considering Equivalent Series Resistance Variations .....</b>	<b>885</b>
<i>Shili Huang, Song Xiong, Dingjun Zeng, Lizi Qu, Li Nie, Guorong Zhu</i>	
<b>Non-Intrusive Load Monitoring: an Architecture and its evaluation for Power Electronics loads .....</b>	<b>890</b>
<i>Douglas P. B. Renaux, Carlos R. Erig Lima, Fabiana Pöttker, Elder Oroski, André E. Lazzaretti, Robson R. Linhares, Andressa R. Almeida, Adil O. Coelho, Mateus C. Hercules</i>	
<b>Active Thermal Control of SiC/Si Hybrid Switch .....</b>	<b>896</b>
<i>Zhizhi He, Zongjian Li, Fanxing Yuan, Cheng Zeng, Xi Jiang, Jun Wang</i>	
<b>SC Parameters Extraction of SiC-MOSFETs and Application in Advanced Gate Drivers.....</b>	<b>900</b>
<i>Huafeng Xiao, Liliang Wu, Ming Cheng, Wei Hua, Zheng Wang</i>	
<b>Study on Technical Standards of Direct Current Bias Magnetic Suppression Device of Power Transformer .....</b>	<b>905</b>
<i>Hua Huang, Bengang Wei, Lei Su, Wenbin Zhao, Xianzhong Zhang, Xu Zheng</i>	
<b>Analysis of Oscillation Mechanism during Turn-on of SiC MOSFET .....</b>	<b>909</b>
<i>James Abuogo, Zhibin Zhao, Junji Ke</i>	
<b>Insulation Performance of Polyetheretherketone Frame inside Press-pack Insulated Gate Bipolar Transistors .....</b>	<b>915</b>
<i>Haoyu Wang, Zhibin Zhao, Pengyu Fu, Jinyuan Li, Peng Zhang</i>	
<b>Improvement of Light Load Efficiency for Buck-Boost DC-DC converter with ZVS using Switched Auxiliary Inductors.....</b>	<b>919</b>
<i>Hayato Higa, Akira Sagawa, Jun-ichi Itoh</i>	
<b>Higher-reliable DC Distribution Systems using the Triple Active Bridge Converter without Batteries .....</b>	<b>925</b>
<i>Yue Yu, Keiji Wada</i>	
<b>Design and Control Method of a Solid-State Transformer for MVDC Applications.....</b>	<b>932</b>
<i>Seok-Min Kim, Kyo-Beum Lee</i>	
<b>Mechanism Analysis and Metrics Extraction for Capacitor Voltage Unbalance of Modular Multilevel Converter with Carrier Phase Shift Modulation .....</b>	<b>938</b>
<i>Weiyao Wang, Ke Ma, Xu Cai</i>	
<b>A Step-Down Partial Power Optimizer Structure for Photovoltaic Series-Connected Power Optimizer System.....</b>	<b>944</b>
<i>Xinghua Zhang, Min Chen, Yutai Fu, Yonghao Li</i>	
<b>Voltage Balance Control Based Aalborg Inverter with Single Source in Photovoltaic System.....</b>	<b>948</b>
<i>Shuai Zhang, Weimin Wu, Houqing Wang, Yuanbin He, Henry Shu-Hung Chung, Frede Blaabjerg</i>	
<b>An Adaptive I-V Curve Detecting Method for Photovoltaic Modules.....</b>	<b>952</b>
<i>Ye Chen Zhu</i>	
<b>Sequence Impedance Modeling and Stability Analysis for Renewable Energy Power Station .....</b>	<b>958</b>
<i>Yi Wang, Yandong Chen, Yuancan Xu, Wenhua Wu, Fujun Ma</i>	

<b>Energy Management and Operation Control for DC Micro-Grid Based on Photovoltaic Generation.....</b>	<b>963</b>
<i>Lanying Yun, Jinsong Kang, Fei Ni</i>	
<b>Impedance-Based Analysis of the Dynamic Stability for the Weak Grid-Connected DFIG during LVRT.....</b>	<b>969</b>
<i>Ruikuo Liu, Jun Yao, Xuwei Wang, Peng Sun, Jinxin Pei</i>	
<b>A Closed-Loop Model for Stability Analysis of Grid-Connected Voltage-Source Converters.....</b>	<b>975</b>
<i>Hongyang Zhang, Xiongfei Wang</i>	
<b>Analysis of Power Balance Influenced by Voltage Configuration in Two-cell Multilevel CHB.....</b>	<b>981</b>
<i>Qifeng Wang, Fei Wang, Hui Guo, Shanshan Zhu</i>	
<b>Influence of Zero Sequence Voltage Injection on Circulating Current Control of Full-Bridge Modular Multilevel Converter for Capacitor Voltage Ripple Minimization.....</b>	<b>988</b>
<i>Cong Zhao, Fei Xu, Zixin Li, Ping Wang, Yaohua Li</i>	
<b>Modeling and Harmonic Analysis of Grid-Side Converter in High-Speed Trains Using LTP Theory.....</b>	<b>994</b>
<i>Siru Yu, Xinglai Ge</i>	
<b>New Adaptive Scheme for Dynamic Voltage Restorer to Voltage Sag Compensation and Flexible Self-recovery.....</b>	<b>1000</b>
<i>Chunming Tu, Qi Guo, Yong Sun, Fan Xiao, Fei Jiang</i>	
<b>STATCOM-Based SSCI Mitigation Algorithm for DFIG-Based Wind Farms.....</b>	<b>1006</b>
<i>Yuzhi Wang, Chunhua Wang, Zhijun Liu, Xiaozhe Song, Liang Wang, Qirong Jiang</i>	
<b>Family of Modular Multilevel Converter (MMC) Based Solid State Transformer (SST) Topologies for Hybrid AC/DC Distribution Grid Applications.....</b>	<b>1011</b>
<i>Jianqiao Zhou, Jianwen Zhang, Xu Cai, Jiacheng Wang, Jiajie Zang</i>	
<b>Analysis and Suppression Strategies of Sub-synchronous Resonance on DFIG.....</b>	<b>1016</b>
<i>Hongyan He, Dianshun Lv, Lu Wen, Wei Lu, Hua Geng, June Gao</i>	
<b>A Novel Unbalance Loads Compensation Method Based on Ultra-Capacitor.....</b>	<b>1021</b>
<i>Zhihao Zhang, Yanmin Liu</i>	
<b>Research on Adaptive Equalization of Lithium Battery Packs Based on Ant Colony System ...</b>	<b>1027</b>
<i>Jiayu Wang, Yewen Wei, Shuailong Dai, Junjie Li, Jialin Yu</i>	
<b>Single-stage Differential Current-fed Isolated AC-DC Converter for Electrolytic Capacitorless OBC with DC Charging.....</b>	<b>1033</b>
<i>Ali Tausif, Sewan Choi</i>	
<b>Research on Hybrid Natural and Forced Active Balancing Control of Battery Packs State of Charge Based on Unscented Kalman Filter.....</b>	<b>1038</b>
<i>Shuailong Dai, Yewen Wei, Jiayu Wang, Junjie Li, Zhichen Ouyang</i>	
<b>Study on Transient Electrical Characteristics of DC Circuit Breaker Based on IGBT Composite Model.....</b>	<b>1048</b>
<i>Bowei Li, Quanrui Hao, Xiaodong Yin</i>	

<b>GaN HEMT Driving Scheme of Totem-Pole Bridgeless PFC Converter .....</b>	<b>1053</b>
<i>Binxing Li, Rongchi Zhang, Nannan Zhao, Gaolin Wang, Junya Huo, Lianghong Zhu, Dianguo Xu</i>	
<b>GaN HEMTs Enabling Ultra-Compact and Highly Efficient 3kW 12V Server Power Supplies.....</b>	<b>1059</b>
<i>Matthias Kasper, Gerald Deboy</i>	
<b>IGBT Junction Temperature Estimation in Water Cooling Power Modules .....</b>	<b>1065</b>
<i>Lisha Peng, Daqing Gao, Wanzeng Shen, Hongbin Yan</i>	
<b>Impact of Package Technologies on the Performance of Power Semiconductor Modules.....</b>	<b>1071</b>
<i>Wei Jing, Hao Zhang, Norbert Pluschke</i>	
<b>Uncertainties in the Lifetime Prediction of IGBTs for a Motor Drive Application.....</b>	<b>1080</b>
<i>Ionut Vernica, Huai Wang, Frede Blaabjerg</i>	
<b>Diode Junction Temperature Measurement from Power Converter Output Voltage .....</b>	<b>1092</b>
<i>Xinyu Zhang, Dawei Xiang, Xiang Zhong, Yichao Yuan</i>	
<b>Fast Diagnosis of Multiple Open-Circuit Faults in a T-type Inverter Based on Voltages across Half-Bridge Switches.....</b>	<b>1098</b>
<i>Borong Wang, Philip T. Krein, Hao Ma, Zhihong Bai, Zhan Li</i>	
<b>A Condition Monitoring Method for Three Phase Inverter Based on System-Level Signal.....</b>	<b>1104</b>
<i>Yingzhou Peng, Yanfeng Shen, Huai Wang</i>	
<b>Fractional-order Internal Model Based Frequency Self-adaption Control for Active Power Filter.....</b>	<b>1109</b>
<i>Qunwei Xu, Jun Wu, Wentao Lv, Ming Chen, Xiaojun Ni, Feng Chen</i>	
<b>Unified Digital Periodic Controller for Power Converter Systems .....</b>	<b>1114</b>
<i>Keliang Zhou, Zuo Wang, Yongheng Yang, Shihua Li, Qihong Chen, Bin Zhang</i>	
<b>A Novel Control Method for the Active Power Decoupling Module with Plug-and-Play in Single Phase Inverter .....</b>	<b>1120</b>
<i>Li Nie, Guorong Zhu, Bingyang Luo, Erjie Qi, Dingjun Zeng, Shili Huang</i>	
<b>Fast-Scale Bifurcation Analysis in Current-source Inverter .....</b>	<b>1126</b>
<i>Fang Yang, Zhen Kang, Yuanbin Wang, Peilin Gao</i>	
<b>Space Vector Modulation for Multi-Source Inverters .....</b>	<b>1130</b>
<i>O. Salari, M. Nouri, K. Hashtrudi Zaad, A. Bakhshai, P. Jain</i>	
<b>Finite Control Set Model Predictive Control for LCL-Filter-Based Grid-Tied Inverter with Computational Delay Compensation.....</b>	<b>1136</b>
<i>Xiaotao Chen, Weimin Wu, Ning Gao, Yuanbin He, Henry Shu-Hung Chung, Frede Blaabjerg</i>	
<b>Parametric Identification of DQ Impedance Model for Three-Phase Voltage-Source Converters.....</b>	<b>1142</b>
<i>Hong Gong, Dongsheng Yang, Xiongfei Wang</i>	
<b>DC Terminal Impedance Model of Voltage Source Converter With DC Voltage Control .....</b>	<b>1148</b>
<i>Danhong Xue, Jinjun Liu, Zeng Liu</i>	
<b>Impedance Modeling and Stability Research of Hybrid Parallel System with Synchronous Generator and Inverters .....</b>	<b>1158</b>
<i>Wei Zhao, Shihao Wang, Xiaofeng Sun, Ailing Wang, Ping Wang</i>	

<b>Robust Compensation of Dead Time in DCM for Grid Connected Bridge Inverters .....</b>	<b>1164</b>
<i>Katelin Spence, Liuchen Chang, Riming Shao</i>	
<b>An Improved Grid Voltage Feedforward Compensation Scheme of Grid-Connected Inverter in Weak Grid.....</b>	<b>1170</b>
<i>Ming Li, Xing Zhang, Haizheng Zhang, Hang Zhang, Weiqi Guan</i>	
<b>A Current Sensor-Less Controller for Grid-Connected Inverters.....</b>	<b>1176</b>
<i>Huafeng Xiao, Mingming Li, Ming Cheng, Wei Hua, Zheng Wang</i>	
<b>Dual Closed-Loop Control Strategy of LCL Filter Grid-Connected Inverter Based on the <math>\alpha\beta</math> Coordinate System.....</b>	<b>1181</b>
<i>Zuxun Huang, Yitao Liu, Huaizhi Wang, Guibin Wang, Jian Yin, Jianchun Peng</i>	
<b>Combining Passivity-Based Control with Active Damping to Improve Stability of LCL Filtered Grid-Connected Voltage Source Inverter .....</b>	<b>1187</b>
<i>Jinping Zhao, Weimin Wu, Ning Gao, Houqing Wang, Henry Shu-Hung Chung, Frede Blaabjerg</i>	
<b>Control of High Gain Modified SEPIC Converter: A Constant Switching Frequency Modulation Sliding Mode Controlling Technique .....</b>	<b>1193</b>
<i>Emre Ozsoy, Sanjeevikumar Padmanaban, Frede Blaabjerg, Dan M. Ionel, Ujjwal Kumar Kalla, Mahajan Sagar Bhaskar</i>	
<b>A Modified Y-source Inverter With High Step-up Ratio.....</b>	<b>1199</b>
<i>Hui Wu, Wentao Wu, Zichao Zhou, Hongpeng Liu, Wei Wang</i>	
<b>An Embedded Enhanced-Boost Z-Source Inverter .....</b>	<b>1205</b>
<i>Jing Yuan, Yongheng Yang, Ping Liu, Yanfeng Shen, Zhipeng Qiu, Frede Blaabjerg</i>	
<b>Impact of Space Vector Modulation Strategies on the Reliability of Impedance-Source Inverters .....</b>	<b>1211</b>
<i>Ping Liu, Jie Xu, Yongheng Yang, Huai Wang, Frede Blaabjerg</i>	
<b>Performance Evaluation of a Three-Phase Five-Level Quasi-Z-Source Cascaded H-Bridge for Grid-Connected Applications.....</b>	<b>1217</b>
<i>R. Miceli, G. Schettino, F. Viola, F. Blaabjerg, Y. Yang</i>	
<b>Analytic Modeling Optimal Control — A New Method to Control Accelerator Magnet Power Supply .....</b>	<b>1223</b>
<i>Xiaojun Wang, Huajian Zhang, Wanzeng Shen, Fengjun Wu, Hongbin Yan, Daqing Gao</i>	
<b>High Power Test Facility 500 kA Pulse Current Sharing Control .....</b>	<b>1229</b>
<i>Xiaojiao Chen, Liansheng Huang, Peng Fu, Xiuqing Zhang, Ge Gao, Liuwei Xu, Shiyong He</i>	
<b>Filter Capacitor Acoustic Noise Prediction Based on ESM for HVDC Converter Stations .....</b>	<b>1233</b>
<i>Rui Wang, Wenjie Chen, Lingyu Zhu, Liyu Dai, Yang Yang, Shengchang Ji</i>	
<b>Single-stage Bridgeless Buck-boost PFC Converter with DC Split for Low Power LED applications.....</b>	<b>1237</b>
<i>Zhengge Chen, Pooya Davari, Huai Wang</i>	
<b>Innovative EDLC Driven Electric Scooter with Unique Power Supply Systems.....</b>	<b>1243</b>
<i>Taisei Ando, Hideki Omori, Noriyuki Kimura, Toshimitsu Morizane</i>	
<b>A Three-Level Three-port Bidirectional DC-DC Converter .....</b>	<b>1249</b>
<i>Amir Ganjavi, Hoda Ghoreishy, Ahmad Ale Ahmad, Zhe Zhang</i>	



<b>Design of CLLC Resonant Converters for the Hybrid AC/DC Microgrid Applications.....</b>	1253
<i>Bin Zhao, Xin Zhang, Jingjing Huang</i>	
<b>A 400kHz Current-Fed Bi-directional DC-DC Converter with Coupling Inductor.....</b>	1263
<i>Jingyu Song, Shuxian Liu, Ran Wan</i>	
<b>Resonant Point Analysis of Generalized CLLC-Type DC Transformer in the Hybrid AC/DC Microgrid .....</b>	1268
<i>Yuanguang Sun, Jingjing Huang, Xin Zhang, Bo Yang, Xiangqian Tong</i>	
<b>Power Flow Models of GaN Based Partial Parallel Dual Active Bridge (P2DAB) DC-DC Converter.....</b>	1273
<i>Yudi Xiao, Zhe Zhang, Michael A. E. Andersen</i>	
<b>A Modular High-Frequency Resonant DC-DC Transformer for MVDC Application.....</b>	1280
<i>Ziheng Xiao, Zhixing He, An Luo, Qianming Xu, Xucheng Huang, Junkun Zhang</i>	
<b>Stability Evaluation of Power Hardware-in-the-loop Simulation for DC System .....</b>	1286
<i>Shengbo Wang, Zigao Xu, Binbin Li, Dianguo Xu</i>	
<b>IC Design for Flyback Converter with Output-Voltage-Drop Compensation Using Primary-Side Feedback Control.....</b>	1291
<i>Hsiang-Feng Yu, Tsorng-Juu Liang, Jian-Hao Lai</i>	
<b>A Practical Small Signal Model for the Interleaved Parallel-Series Active Clamp Forward Converter With Peak Current Control.....</b>	1297
<i>Richard Yang</i>	
<b>A Coupled Inductors Based High Gain Non-isolated Three-port DC-DC Converter .....</b>	1304
<i>Xianbin Qi, Donglai Zhang, Xuwei Pan, Mingzhu Fang</i>	
<b>A Modified One Cycle Control of VIENNA Rectifier for Neutral Point Voltage Balancing Control Based on Cycle-by-cycle Correction .....</b>	1310
<i>Hong Cheng, Yue Ma, Cong Wang</i>	
<b>Single-phase Bridgeless Rectifier with Capability of Power Quality Management .....</b>	1316
<i>Hong Cheng, Ting Chen, Cong Wang, Xihua Wang, Xiaotong Qin</i>	
<b>A Novel Three-phase Buck-type Rectifier and Its Analysis .....</b>	1322
<i>Hongxia Xiao, Cuijie Zhang, Bin Liu, Jinqi Cai, Jun Li</i>	
<b>Control Strategy for Three-Phase Bridgeless Rectifier Under Unbalanced Grid Conditions.....</b>	1328
<i>Hong Cheng, Jiayi Kong, Jinge Jiang, Cong Wang, Penghui Wang</i>	
<b>Electrical Analysis and Design on Superconductor Magnet High Power AC/DC Converter ....</b>	1334
<i>Zhongma Wang, Liansheng Huang, Peng Fu, Zhiquan Song, Hua Li, Shusheng Wang, Kun Wang, Wei Tong</i>	
<b>Modeling and Stability Analysis of Three-Phase PWM Rectifier .....</b>	1338
<i>Shiming He, Jian Xiong, Dayi Dai</i>	
<b>Stability-Oriented Design for LCL-LC-Trap Filters in Grid-Connected Applications Considering Certain Variation of Grid Impedance.....</b>	1343
<i>Jinming Xu, Shenliyong Bian, Qiang Qian, Shaojun Xie</i>	

<b>Design of Observer-Based Active Damping Using Disturbance Observer for Grid-Connected Inverter with LCL Filter .....</b>	<b>1349</b>
<i>Jiahao Liu, Weimin Wu, Ning Gao, Yuanbin He, Henry Shu-Hung Chung, Frede Blaabjerg</i>	
<b>Impedance Modeling and Output Impedance Coupling Analysis of Three-Phase Grid-Connected Inverters.....</b>	<b>1355</b>
<i>Wen Yang, Mingyu Wang</i>	
<b>Full-State Feedback Based Active Damping Control Design for LCL-type Grid-Connected Converter under Weak Grid .....</b>	<b>1360</b>
<i>Zhengchen Guo, Xudong Zou, Yanrun Huang, Yong Kang, Kaifeng Zou</i>	
<b>Synchronization Stability Analysis of Grid-Tied Power Converters under Severe Grid Voltage Sags .....</b>	<b>1366</b>
<i>Xiuqiang He, Hua Geng, Geng Yang</i>	
<b>Observer-Based Discrete Sliding Mode Control for LCL-Filtered Grid-Connected Inverters with Less Sensors .....</b>	<b>1372</b>
<i>Min Huang, Han Li, Weimin Wu, Frede Blaabjerg</i>	
<b>Investigation of Common-Mode Current Elimination in Four-Wire Inverter-Fed Motor .....</b>	<b>1378</b>
<i>Zhao Zhao, Benjamin Horn, Roberto Leidhold</i>	
<b>A Systematic Design and Optimization Technique for the Suppression of EMI Common Mode (CM) Noise.....</b>	<b>1383</b>
<i>Lei Wang, Hao Chen, Muhammad Saqib Ali, Guozhu Chen</i>	
<b>Conducted EMI Modeling and Filtering for Multiload Magnetic Resonant WPT System .....</b>	<b>1389</b>
<i>Tianluan Xiao, Wenjie Chen, Yang Yang, Liyu Dai, Rui Wang</i>	
<b>Effective EMI Filter Design Method of Single-phase Inverter Based on Noise Source Impedance.....</b>	<b>1394</b>
<i>Shiqi Jiang, Yitao Liu, Huaizhi Wang, Guibin Wang, Jian Yan, Jianchun Peng</i>	
<b>High-frequency Model of Permanent Magnet Synchronous Motor for EMI prediction in Adjustable Speed Drive System .....</b>	<b>1400</b>
<i>Yingzhe Wu, Hui Li, Wenjie Ma, Minghai Dong, Qishui Zhong</i>	
<b>A New Approach for Improving Stability of Active CM EMI Filters for AC/DC Power Converters.....</b>	<b>1406</b>
<i>Liyu Dai, Wenjie Chen, Rui Wang, Yang Yang, Yongxing Zhou</i>	
<b>Dynamic Parameter Identification of Mathematical Model of Lithium-Ion Battery Based on Least Square Method.....</b>	<b>1410</b>
<i>Rui Li, Jialing Yu, Yingchao Zhang, Zican Wang, Yu Lei, Junqiang He</i>	
<b>Parameter Identification Method for Fractional-order Model of Lithium-ion Battery .....</b>	<b>1415</b>
<i>Dongxu Guo, Geng Yang, Xing Zhou, Languang Lu, Minggao Ouyang</i>	
<b>BP Neural Network Model of Lithium-iron Phosphate Battery Based on Step-discharge Current Response.....</b>	<b>1421</b>
<i>Xu Liu, Dongxu Guo, Yingjie Chen, Hua Geng, Geng Yang, Languang Lu, Minggao Ouyang</i>	
<b>State of Charge Balancing Control for DESUs in PV &amp; Battery based AC Nanogrid .....</b>	<b>1427</b>
<i>Lei Qi, Sansan Guo, Xiaofeng Sun, Ailing Wang, Ping Wang</i>	

<b>An Isolated Bidirectional Modular Multilevel DC-DC Converter for MVDC Distribution System in Ship</b> .....	1432
<i>Fengxin Sun, Jilong Liu, Fei Xiao, Peng Chen, Xin Li</i>	
<b>Feedback Linearization Adaptive Control for a Buck Converter with Constant Power Loads</b> .....	1438
<i>Jiarong Wu, Yimin Lu</i>	
<b>Design of High Frequency and Wide Voltage Range Isolated Bidirectional DC-DC Converter</b> .....	1444
<i>Haiyang Jia, Yangtao Huang, Zheyuan Yu, Mofan Tian, Ziyue Duan, Zihang Wang, Xu Yang, Laili Wang, Chaoran Zhuo</i>	
<b>An Improved Duty Cycle Generation Scheme for the Three-Phase Single-Stage PFC in Unbalanced-Grid</b> .....	1450
<i>Tao Meng, Zhenduo Chen, Hongqi Ben, Huishuang Fan</i>	
<b>Instantaneous Current Balance Modulation for Fast Transient Response in a Dual-Active-Bridge Converter</b> .....	1460
<i>Chuan Sun, Xiaodong Li</i>	
<b>Six-phase Symmetric Inverse Fully Coupled Nonisolated Interleaved Bidirectional Buck/Boost Converter With Low Current Ripples &amp; High Dynamic Response</b> .....	1466
<i>Lei Wang, Donglai Zhang, Darun Zha, Jinpei Duan, Jiannong Li</i>	
<b>Research on Active Disturbance Rejection Control Method for Bidirectional DC-DC Converter Based on Immune Algorithm</b> .....	1472
<i>Hui Yang, Shan Luo, Xiangdong Sun , Kaiyue Chao</i>	
<b>Comparison between Control Methods of Active Clamp Flyback for Adaptor Application</b> .....	1478
<i>Haibin Song, Daofei Xu, Alpha J. Zhang</i>	
<b>A Novel Phase-Shift Full-Bridge Converter With Separated Resonant Networks For Electrical Vehicle Fast Chargers</b> .....	1484
<i>Tiancheng Cui, Chuang Liu, Renzhong Shan, Yibo Wang, Dehao Kong, Jiyan Guo</i>	
<b>Performance Characteristics of High Power Density Battery Charger for Plug-In Micro EV</b> ....	1490
<i>Shinichiro Hattori, Haruhi Eto, Jizhe Wang, Fujio Kurokawa</i>	
<b>A Novel ZCS Full-Bridge PWM Converter with Simple Auxiliary Circuits</b> .....	1496
<i>Rongyi Niu, Weiguo Zhang, Wu Chen, Liangcai Shu, Guangfu Ning, Dajun Ma</i>	
<b>High Efficiency Bidirectional DC-DC Converter with Wide Gain Range for Photovoltaic Energy Storage System Utilization</b> .....	1502
<i>Fangyuan Shi, Rui Li, Jiatao Yang, Wei Yu</i>	
<b>Soft Switching PWM Full Bridge Three-Level DC-DC Converters</b> .....	1508
<i>Shi Yong</i>	
<b>A Half-Bridge LLC Converter for Wide Input Voltage Range Applications</b> .....	1513
<i>Xiaoguang Jin, Xiao Zhou, Wubin Wang, Zhen Ma, Jun Xu, Zhengyu Lu</i>	
<b>Optimized Feed-forward Control Scheme for Vienna Rectifier with Estimated Load-Current</b> .....	1518
<i>Tao Wang, Changsong Chen, Shanxu Duan, TianChang Liu, Wenjie Zhu, Xiaoming Zhang</i>	
<b>Optimal Compensation of Delta-connected Dynamic Capacitor for Unbalanced Load</b> .....	1524
<i>Xiaosheng Wang, Ke Dai, Xinwen Chen, Tian Tan, Ziwei Dai</i>	

<b>A Common-Mode Voltage Reduction Modulation for a Phase-Shift DC-DC Converter .....</b>	<b>1530</b>
<i>Kai Tian, TinHo Li, KuenFaat Yuen</i>	
<b>Design of Three-phase Vienna PFC Circuit With Integral Improved PI Controller .....</b>	<b>1535</b>
<i>Zifeng Zhao, Wenjie Chen, Liyu Dai</i>	
<b>Analysis and Comparison of Partial Power Processing Based DC-DC Converters in Renewable Energy Application.....</b>	<b>1539</b>
<i>Xiaoping Sun, Xinlu He, Hailin Wang, Feng Wang, Fang Zhuo, Hao Yi</i>	
<b>High Step-up/Step-down Soft-switching Bidirectional DC/DC Converter Based on GaN HEMT .....</b>	<b>1544</b>
<i>Mohen Zhu, Yueshi Guan, Yijie Wang, Hua Yang, Dianguo Xu</i>	
<b>An Interleaving 90° Three-Level DC-DC Converter and Current Sharing Control .....</b>	<b>1550</b>
<i>Pengcheng Li, Chunjiang Zhang, Zhizhong Kan, Yuliang Fu</i>	
<b>High Step-up Low-voltage Stress Boost Converter Based on Coupled Inductor .....</b>	<b>1556</b>
<i>Zirui Yao, Jun Zeng, Junfeng Liu</i>	
<b>A Novel Transformer Structure Used in a 1.4 MHz LLC Resonant Converter with GaNFETs .....</b>	<b>1562</b>
<i>Tengfei Ou, Mostafa Noah, Koichi Morita, Mamoru Tsuruya, Seiji Namiki, Jun Imaoka, Masayoshi Yamamoto</i>	
<b>Proportional-Resonant Current Control for VIENNA Rectifier in Stationary <math>\alpha\beta</math> Frame.....</b>	<b>1567</b>
<i>Tianchang Liu, Changsong Chen, Tao Wang, Shanxu Duan, Hua Cheng</i>	
<b>High Frequency Wide Output Range Boost-Flyback Converter with Zero Voltage Switching.....</b>	<b>1574</b>
<i>Yuan Liu, Yi Dou, Mingxing Du, Kexin Wei, Hurley Gerard, Michael A. E. Andersen, Ziwei Ouyang</i>	
<b>A Novel Control Method for Eliminating DC Bias in Dual-Active-Bridge DC-DC Converters ...</b>	<b>1580</b>
<i>Kai Li, Yue Wang, Jinghui Xu, Jianpeng Wang, Rui Li, Chunhui Lv</i>	
<b>Hybrid Controlled Full-bridge CLL Resonant Converter for Wide Range Input Voltage.....</b>	<b>1586</b>
<i>Xin'an He, Yufei Zhou, Lunhui Sheng</i>	
<b>The Modular Multilevel Converter Based Multi-Terminal DC Transformer with Controllable Power Flow .....</b>	<b>1592</b>
<i>Yuqi Duan, Xiaotian Zhang, Xu Yang, Yang Qiao, Guochun Xiao</i>	
<b>A 12-pulse Rectifier Based on Power Electronic Phase-shifting Transformer .....</b>	<b>1598</b>
<i>Fangang Meng, Zhongcheng Man, Lei Gao</i>	
<b>A High-Efficiency LLC-C Resonant Converter for Wide-Gain-Range Application.....</b>	<b>1602</b>
<i>Liang Yang, Shimeng Dong, Yifeng Wang, Zhanchun Li, Mengying Chen</i>	
<b>Research on the Test Method of Dynamic Current Sharing Test for ITER PF Converter .....</b>	<b>1608</b>
<i>Xiuqing Zhang, Ge Gao, Peng Fu, Zhiquan Song, Shusheng Wang, Kun Wang, Wei Tong, Xiaojiao Chen</i>	
<b>Analysis and Design of a dc-dc Converter Using Visual Aid.....</b>	<b>1613</b>
<i>Kasper Lüthje Jørgensen, Zhe Zhang, Maria del Carmen, Michael A. E. Andersen</i>	

<b>Loss Comparison of Two Bidirectional Isolated DC/DC Converters for Reversible Solid Oxide Fuel Cell Systems .....</b>	<b>1619</b>
<i>Wei Kong, Keqing Qu, Xiang Lin, Kai Sun, Shujun Mu, You Zhou</i>	
<b>Research on Open-loop Soft-start Strategy of CLLLC Bi-directional Resonant Converter.....</b>	<b>1625</b>
<i>Yu Tang, Sicheng Gong, Shaojun Xie</i>	
<b>Open-Circuit Fault Diagnosis of Dual Active Bridge DC-DC Converter Based on Residual Analysis.....</b>	<b>1631</b>
<i>Dong Xie, Xinglai Ge</i>	
<b>Design Considerations for LED Thermal Stress Minimization in Electrolytic Capacitor-Less Single Stage Power Converter .....</b>	<b>1637</b>
<i>Byuong-Jun Seo, Kwon-Sik Park, Kyoung-Suk Kang, Kwang-Rae Jo, Eui-Cheol Nho</i>	
<b>Common Mode EMI Mitigation in Power Inverters Using Output Delay Compensation .....</b>	<b>1641</b>
<i>Michele Perotti, Franco Fiori</i>	
<b>Cell-Voltage Ripple Reduction for Modular Multilevel Converters with Zero-Mean Current Command Injection.....</b>	<b>1646</b>
<i>Tsai-Fu Wu, Chun-Wei Huang, Tzu-Chieh Chou, Kai Sun</i>	
<b>An Improved Bidirectional Dual Buck DC-AC Converter .....</b>	<b>1652</b>
<i>Xinglan Zeng, Qiongbin Lin, Fenghuang Cai, Wu Wang, Xianjin Su</i>	
<b>Improved Modeling, Stability Analysis and Resonance Suppression of APF System.....</b>	<b>1657</b>
<i>Yuqi Bing, Daozhuo Jiang, Yiqiao Liang, Lei Yang, Peng Qiu, Feng Xu</i>	
<b>A Repetitive Sliding Mode Control for Household Mircogrid Inverter Operating in Islanding Mode.....</b>	<b>1662</b>
<i>Shixuan Lyu, Lijun Zheng, Jiancheng Song, Zongwei Liu, Muqin Tian</i>	
<b>Hierarchical Circulating Current Control Method for Modular Multilevel Converter .....</b>	<b>1668</b>
<i>Yufei Yue, Yan Li, Qianming Xu, Peng Guo, Fujun Ma, Zhixing He, An Luo</i>	
<b>Electrolytic Capacitor-Less PMSM Control System With a Neural Network-Based Bus Voltage Fluctuation Suppression Strategy .....</b>	<b>1673</b>
<i>Liyu Zhang, Qianlong Tang, Wen Yang, Chuanwen Shen</i>	
<b>Space Vector Modulation for SiC &amp; Si Hybrid Active Neutral Point Clamped Converter.....</b>	<b>1678</b>
<i>Chushan Li, Rui Lu, Wuhua Li, Yuxiang Wang</i>	
<b>A Simplified Space Vector PWM Based on Virtual Carrier Phase Disposition .....</b>	<b>1684</b>
<i>Xikun Chen, Tingna Li</i>	
<b>An improved LCL Filter Design Method Based on Stability Region and Harmonic Interaction for Grid-Connected Inverters in Weak Grid.....</b>	<b>1689</b>
<i>Zhe Zhang, Fang Liu, Jinxin Deng, Zhen Xie, Meng Wang</i>	
<b>Loss Minimization Control of SPMSM Considering Linear Iron Loss .....</b>	<b>1694</b>
<i>Qianlong Tang, Wen Yang, Liyu Zhang, Chuanwen Shen</i>	
<b>Analysis and Optimized Control of MMC under Asymmetric Arm Parameter Conditions.....</b>	<b>1698</b>
<i>Peng Dong, Jing Lyu, Xu Cai</i>	
<b>Fractional-order time delay compensation in deadbeat control for power converters.....</b>	<b>1704</b>
<i>Zuo Wang, Keliang Zhou, Shihua Li, Yongheng Yang</i>	

<b>Power Saving by Conservation Voltage Reduction Using Power Converters</b> .....	1710
<i>Katelin Spence, Saleh Saleh, Liuchen Chang</i>	
<b>The Soft-Switching Technique for RB-IGBT based T-Type Three-Level Inverter</b> .....	1714
<i>Piao Wen, Xiaofeng Yang, Trillion Q. Zheng, Tatsuhiko Fujihira, Seiki Igarashi</i>	
<b>High Voltage Quality Control Strategy of Microgrid Main Inverter for Islanded Microgrid</b> .....	1720
<i>Chunming Tu, Fan Xiao, Zheng Lan, Qi Guo</i>	
<b>A Low-Loss Grid Decoupling Mechanism in a Transformerless Single-Phase Interfacing Inverter</b> .....	1725
<i>Yuqi Peng, Yuanbin He, Yao Zhang, Lijun Hang</i>	
<b>A Low-Loss Grid Decoupling Mechanism in a Three-Phase Grid-Connected Inverter</b> .....	1730
<i>Bangchao Wang, Yuanbin He, Lei Shen, Xiaogao Xie</i>	
<b>Control Technology for T-type Three Level Power Conversion System Under Non-ideal Grid</b> .....	1736
<i>Jinghua Zhou, Qiang Song, Hai Dong Zhang</i>	
<b>Design and Analysis of Different Passive Damping for Grid-Connected LCL filters to Achieve Desirable System Performance</b> .....	1740
<i>Shenyiyang Bian, Jinming Xu, Qiang Qian, Shaojun Xie</i>	
<b>A Novel Control Method of Grid-Connected Inverter during Multiple-Phase Disconnection of Double Circuit Transmission Line after Multiple-Phase Fault in a Weak Grid</b> .....	1746
<i>Ben Liu, Teruo Yoshino, Atsuo Kawamura</i>	
<b>Fast Voltage Balance Control Strategy of Microgrid Inverter Operating in Islanded Mode</b> .....	1752
<i>Jidong Lai, Jialiang Liu, Jianhui Su, Yong Shi, Xiangzhen Yang, Tianyue Xie</i>	
<b>Improved Non-Communication Autonomous Control of Microgrid Grid-Connected Inverter</b> .....	1757
<i>Nianchun Wang, Ming Jin, Ming Cheng</i>	
<b>Finite Control Set Model Predictive Control for LCL-Filter-Based Grid-Tied NPC Inverter</b> .....	1763
<i>Xiaotao Chen, Ning Gao, Weimin Wu, Min Huang, Henry Shu-Hung Chung, Frede Blaabjerg</i>	
<b>Model Predictive Control for Neutral- Point Voltage Balance Based on Improved T-type Three Level Inverter</b> .....	1769
<i>Guoliang Yang, Shuai Hao, Haitao Yi, Chunhua Chai, Taiyu Chen, Bingxu Huang, Chuntian Fu</i>	
<b>A Novel Hybrid Cascaded Multilevel Inverter</b> .....	1773
<i>Yingfeng Zhu, Shengnan Guo, Lingying Chen, Qing Yan, Huan Ma, Xiaosu Xie, Weichao Zhang, Xunkui Yuan</i>	
<b>Capacitor Voltage Ripple Reduction Methods of Modular Multilevel Converter under Unbalanced Fault Conditions: A Comparison</b> .....	1778
<i>Songda Wang, Remus Teodorescu, Sanjay K Chaudhary</i>	
<b>Harmonic Analysis of Output Voltage in PWM Inverters</b> .....	1784
<i>Ning Jiao, Shunliang Wang, Tianqi Liu</i>	
<b>Hybrid Modulation Strategy for Eliminating Low-Frequency Neutral-Point Voltage Oscillations in Z-Source NPC Three-Level Inverter</b> .....	1794
<i>Hongchao Liu, Alian Chen, Jie Chen, Chunshui Du, Chenghui Zhang</i>	

<b>Model Predictive Rotor Current Control for Doubly Fed Induction Generators under Unbalanced Grid Voltages</b> .....	1799
<i>Yongchang Zhang, Jian Jiao</i>	
<b>MMC Capacitor Voltage Balancing Strategy Based on Carrier Rotation</b> .....	1804
<i>Zhihong Bai, Hongshen Xia, Hao Ma, Jun Wang</i>	
<b>Small-Signal Modeling and Impedance Analysis of Virtual Synchronous Generator</b> .....	1809
<i>Ningbo Dong, Huan Yang, Junfei Han</i>	
<b>Grid Current Control for Three-Phase Diode Rectifier-Fed Motor Inverter with Small DC-Link Capacitor</b> .....	1815
<i>Ke Li, Yi Wang</i>	
<b>A Novel Open-Circuit Fault Diagnosis Method for Voltage Source Inverter</b> .....	1819
<i>Yang Mei, Hui Yuan</i>	
<b>Unipolar Phase-Shifted Modulation Strategy for Single-Phase High-Frequency Link Converter</b> .....	1825
<i>Zhaoyang Yan, Xuwei Song, Shuchao Xu, Weijie Hao, Ming Kang</i>	
<b>Single-Phase Voltage Source Inverter with Power Decoupling and Reactive Power Control</b> .....	1830
<i>Liuchen Chang, Zhipeng Geng, Meiqin Mao</i>	
<b>Integrate-Power -Control-Strategy -Based Electrolytic Capacitor-less Back-to-Back converter for Variable Frequency Speed Control System</b> .....	1836
<i>Danyang Bao, Yi Wang, Xuwei Pan</i>	
<b>Study on Energy Bidirectional Flow Control Strategy of Reduced Matrix Converter</b> .....	1841
<i>Baohui Ma, Lin Chen, Biying Ren, Xiangdong Sun</i>	
<b>On the Grid-Tied Inverter Power Limitation</b> .....	1847
<i>Terng-Wei Tsai, Yaow-Ming Chen</i>	
<b>A Control Method Of Single-phase to Three-phase Inverter System Without Electrolytic Capacitor</b> .....	1851
<i>Fashun Li, Senqing Zhuo, Jianbo You, Kai Shi</i>	
<b>Performance and Failure Analysis of High Power Thyristor Caused by Fast Neutron Irradiation</b> .....	1857
<i>Zhongma Wang, Hua Li, Zhiquan Song, Peng Fu, Cunwen Tang</i>	
<b>The ESD Behavior of Enhancement GaN HEMT Power Device with p-GaN Gate Structure</b> .....	1861
<i>Juntu Feng, Zhiyuan He, Yunfei En, Yun Huang, Yiqiang Chen, Jiang He, Tao Yin, Guoyuan Li</i>	
<b>Analysis of SiC MOSFET Switching Performance and Driving Circuit</b> .....	1865
<i>Weiping Zhang, Liang Zhang, Peng Mao, Xiaoxiao Chan</i>	
<b>Stability Research in Bridge Circuit with a 650V GaN HDGIT</b> .....	1869
<i>Hongyu Liu, Yan Li, Qing Tang, Fangwei Zhao</i>	
<b>Investigation of Temperature-Dependent Electrical Behavior and Trap Effect in AlGaN/GaN HEMT</b> .....	1875
<i>Faming Feng, Yiqiang Chen, Xinbin Xu, Yongtao Yu, Xiaoqiang Wang, Jiang He, Guoyuan Li</i>	

<b>Research on Mechanism and Suppression Method of Current Unbalance of Parallel IGBTs</b> .....	1879
<i>Jinyuan Li, Lubin Han, Lin Liang, Zhongyuan Chen, Rui Wang, Guoqiang Tan</i>	
<b>Adopting the BSIM3 Model to Describe the DC-IV Characteristics of a Vertical Power MOSFET</b> .....	1885
<i>Lixi Yan, Ingmar Kallfass</i>	
<b>Research on the Current Distribution Characteristics within a Single Chip of press pack IGBT</b> .....	1891
<i>Zhongyuan Chen, Xizi Zhang, Yan Pan, Jinyuan Li</i>	
<b>Stray Inductance Extraction of High-Power IGBT Dynamic Test Platform and Verification of Physical Model</b> .....	1897
<i>Xin Li, Yifei Luo, Yaoqiang Duan, Binli Liu, Yongle Huang, Fengxin Sun</i>	
<b>Simplified Junction Temperature Estimation using Integrated NTC Sensor for SiC Modules</b> .....	1903
<i>Ping Liu, Xing Zhang, Shuhu Yin, Chunming Tu, Shoudao Huang</i>	
<b>Fast Electro-thermal Simulation Strategy for SiC MOSFETs Based on Power Loss Mapping</b> .....	1907
<i>Lorenzo Ceccarelli, Ramchandra Kotecha, Francesco Iannuzzo, Alan Mantooth</i>	
<b>Loss Analysis and Measurement of ANPC Inverter Based on SiC &amp; Si Hybrid Module</b> .....	1913
<i>Zhijian Feng, Xing Zhang, Shaolin Yu, Jianing Wang</i>	
<b>Analysis of Press-Pack SiC MOEFET'S Parasitic Resistance</b> .....	1919
<i>Rui Yan, Min Chen, Nan Zhu, Dehong Xu</i>	
<b>Experimental Comparison of SiC MOSFET and BJT</b> .....	1925
<i>Yize Shi, Shiwei Liang, Fang Fang, Jun Wang</i>	
<b>Design of Fluorine-Ion-Based Junction Termination Extension for Vertical GaN Schottky Rectifier</b> .....	1931
<i>Yuxin Liu, Shaowen Han, Shu Yang, Kuang Sheng</i>	
<b>Feasibility Study of SiC Devices for Low Voltage Converter in a Wind Power Generation System</b> .....	1936
<i>Xuan Guo, Li Ran, Philip Mawby, Chunjiang Jia, Chong Ng, Paul Mckeever</i>	
<b>Monitoring the Thermal Grease Degradation Based on the IGBT Junction Temperature Cooling Curves</b> .....	1942
<i>Shuai Zheng, Xiong Du, Jun Zhang, Yaoyi Yu, Quanming Luo, Weiguo Lu</i>	
<b>An Integrated Unit for CLCL Resonant LED Driver</b> .....	1946
<i>Cheng Deng, Masiqian Yong</i>	
<b>A Novel Modeling Method for Nonlinear Magnetic Devices Reflect Magnetic Circuit and Circuit Characteristics</b> .....	1952
<i>Lei Wang, Donglai Zhang, Jinpei Duan, Jiannong Li</i>	
<b>Design of a Novel Medium-Frequency Coaxial Transformer for Modular Isolated DC/DC Converter</b> .....	1957
<i>Weijia Tang, Xiaodong Yuan, Mingming Shi, Zhen Li, Fei Chen</i>	



<b>A Lumped Common Mode Choke Model by Finite Element Software Considering Complex Permeability Change with Frequency</b> .....	1963
<i>Yechi Zhang, Dong Jiang</i>	
<b>Reduction of Common Mode Voltage Through Improved Three-Phase Inverter Topology</b> .....	1967
<i>Meijuan Wang, Xuejun Pei, Yangxiao Xiang, Yong Kang</i>	
<b>Application of Random PWM Technology in DAB Converter</b> .....	1972
<i>Jinsong Kang, Xiyuan Zhu, Lanying Yun</i>	
<b>The Structure Optimization and Magnetic Leakage Analysis of a Electromagnetic Brake with Two Layers windings</b> .....	1978
<i>Jing Shang, Xiaohe Ran, Cheng Liu</i>	
<b>Analysis and Suppression of Common-mode EMI in Three-phase Vienna PFC Circuit</b> .....	1983
<i>Zifeng Zhao, Wenjie Chen, Liyu Dai</i>	
<b>Optimization Design of High-Power High-Frequency Transformer Based on Multi-Objective Genetic Algorithm</b> .....	1987
<i>Ke Zhang, Wu Chen, Xiaopeng Cao, Zhanfei Song, Guangyao Qiao, Li Sun</i>	
<b>Electromagnetic Wireless Power Transmission Power Supply Design</b> .....	1992
<i>Guoning Xu, Wei Zhang, Qichao Zhu, Zhaojie Li, Xiaowei Du, Yang Gao</i>	
<b>Efficiency Improvement For Multi-Position of Receiver in 13.56 MHz Wireless Power Transfer Coupling System</b> .....	1995
<i>Cuong Nguyen Tri, Kan Akatsu</i>	
<b>Simulation Research on IGBT Thermal Impact of Solder Voids Based on Fractal Theory</b> .....	2000
<i>Hongfei Deng, Fei Xiao, Yifei Luo, Yingjie Jia, Yaoqiang Duan</i>	
<b>Development and Analysis of the Double-layer Water-cooled Heat Sink for the Switch Network Unit of the EAST</b> .....	2005
<i>Shusheng Wang, Zhiquan Song, Peng Fu, Kun Wang, Zhongma Wang, Wei Tong, Xiuqing Zhang, Hua Li</i>	
<b>Frequency-Domian Current Control of Harmonic Current Injection System for Power Capacitor</b> .....	2009
<i>Shouzhi Zheng, Jingang Han, Xuejian Han, Gang Yao, Tianhao Tang</i>	
<b>Study on the Electro-Thermal Characteristics of Three-Level NPC Inverter Based on 60°Discontinuous Space Vector PWM Strategy</b> .....	2015
<i>Rui Hu, Quan Chen, Cungang Hu, Qunjing Wang, Jianrui Li, Min Chen</i>	
<b>A Temperature Prediction Model of T-type Inverter Module Based on Multi-Physics Coupling</b> .....	2021
<i>Jianpeng Wang, Zhiyuan Qi, Yuqi Duan, Laili Wang, Cheng Zhao, Fengtao Yang</i>	
<b>Mechanism Analysis of Bond Wire Degradation Leading to the Increase of IGBT Collector-Emitter Voltage</b> .....	2027
<i>Yingjie Jia, Yaoqiang Duan, Fei Xiao, Yifei Luo, Binli Liu, Hongfei Deng</i>	
<b>A Plug-and-play Condition Monitoring System for IGBT Module Bonding Wires</b> .....	2031
<i>Ye Wang, Mingyao Ma, Kexiang Yuan, Rui Wang, Jianing Wang</i>	
<b>A Sensorless Control Method for MMC Based on Sliding Mode Observer</b> .....	2036
<i>Yu Luo, Fei Wang, Tongyang Bai, Hui Guo, Xiayun Feng</i>	

<b>Analysis and Design of Tripole Converter System for AC Distribution Lines Upgraded to MVDC</b> .....	2047
<i>Xiaobo Yang, Mats Andersson, Hailian Xie</i>	
<b>A Principle of Fault Line Selection Based on Increasing Zero-sequence Current in Non-ground Neutral System</b> .....	2052
<i>Tantan Huang, Huifen Zhang, Zhipeng Gao, Yao Guo</i>	
<b>DC Fault Ride Through Strategy of a PWM-CSC Based Hybrid HVDC Transmission System</b> .....	2057
<i>Bing Xia, Yaohua Li, Zixin Li, Fei Xu, Fanqiang Gao, Ping Wang</i>	
<b>Droop Regulation for MMC-DSTATCOM under Unbalanced PCC Voltage</b> .....	2063
<i>Tian Tan, Ke Dai, Yongshuo Huang, Shaocheng Huang, Ziwei Dai, Xiaosheng Wang</i>	
<b>Research on the High Temperature Superconducting Controllable Reactor</b> .....	2069
<i>Guangqi Liu, Yingdun Hei, Kunming Yang, Xingmei Zhou</i>	
<b>Study on the High Temperature Superconducting Current Leads for Large Scale Superconducting Magnet</b> .....	2073
<i>Guangqi Liu, Yingdun Hei, Kunming Yang, Xingmei Zhou</i>	
<b>Overview on VSC-HVDC Systems Based on PV</b> .....	2078
<i>Jinghua Zhou, Jiewei Wu</i>	
<b>Selection of Feedback-Signal and Location in STATCOM-based SSCI Mitigation Algorithm</b> .....	2082
<i>Zhijun Liu, Liang Wang, Chunhua Wang, Xiaozhe Song, Yuzhi Wang, Qirong Jiang</i>	
<b>Electric-field Simulation of Insulation Type Test of <math>\pm 420</math>kV HVDC Flexible Converter Valve</b> .....	2092
<i>Chenyang Liu, Kun Han, Weizheng Yao, Siqian Hu, Xiaoquan Zheng</i>	
<b>A New Quasi Three-level Hybrid Modular Multilevel Converter</b> .....	2096
<i>Xiaochao Wei, Sizhao Lu, Xiaoting Deng, Siqi Li</i>	
<b>Grounding Design and Fault Analysis of MMC Based Flexible Interconnection Device in Future Distribution Networks</b> .....	2102
<i>Jiajie Zang, Jiacheng Wang, Jianwen Zhang, Jianqiao Zhou</i>	
<b>Three-phase Four-Leg High Frequency Link Matrix Rectifier and Its Modulation Strategy</b> .....	2108
<i>Zhaoyang Yan, Chenyang Liang, Ming Kang, Jianxia Li, Lijun Yang</i>	
<b>Experimental Study on Fast Isolating Switch With Vacuum Multi-breaks</b> .....	2114
<i>Bin Liu, Haibo Yu, Xiaobo Zhang, Pengcheng Xie, Jie Xiong</i>	
<b>Design and Analysis of a 375V/5kA Solid State DC Circuit Breaker Based on IGCT</b> .....	2119
<i>Lu Qu, Zhanqing Yu, Songbo Huang, Jiapeng Liu, Wenpeng Zhou, Zhengyu Chen, Jie Zeng, Ning Xie, Rong Zeng</i>	
<b>Comparison of High Power DC-DC Converters for Photovoltaic Generation Integrated into Medium Voltage DC Grids</b> .....	2124
<i>Shilei Lu, Kai Sun, Haixu Shi, Siyue Jiang, Yun Wei Li</i>	
<b>Adaptive Harmonic Current Compensation Method with SAPF based on SOGI</b> .....	2135
<i>Congbin Xiao, Xuejun Pei, Yanhua Liu, Yi Lu, Chaoliang Wang, Feng Xu</i>	

<b>Optimal Load Shedding Strategy of Microgrid Based on Improving Reliability of Load Power Supply</b> .....	2141
<i>Haiyan Wang, Xiangqian Tong, Jingjing Huang, Yafei Chang, Fei Li</i>	
<b>Improved Adaptive Inertia Control of VSG for Low Frequency Oscillation Suppression</b> .....	2146
<i>Xin Li, Guozhu Chen</i>	
<b>Analysis of Current Resonance Characteristics of Multiple Grid-Connected Inverters</b> .....	2151
<i>Jie Wang, Pengju Sun, Biao Li, Kunlong Zhu, Yuqi Wei</i>	
<b>High-Power High-Step-Up Ratio DC Solid-State Transformer Based on Medium-Frequency Inversion</b> .....	2157
<i>Jie Zhang, Fang Liu, Jinxin Deng, Zhe Zhang, Meng Wang</i>	
<b>Design and Analysis of a Novel Spherical Motor Based on the Principle of Reluctance</b> .....	2162
<i>Wenqiang Tao, Guoli Li, Lufeng Ju, Rui Zhou, Cungang Hu</i>	
<b>The Passivity-based Hybrid Control of NPC Hybrid Three Phase Voltage Source Rectifier</b> ....	2168
<i>Yumeng Jiang, Jiuhe Wang, Qingkui Li, Yuanpeng Feng, Xiaobin Mu</i>	
<b>State of charge estimation of lithium battery based on Dual Adaptive Unscented Kalman Filter</b> .....	2174
<i>Peng Zhang, Changjun Xie, Shibao Dong</i>	
<b>An Optimal Reactive Power Compensation Allocation Method Considering the Economic Value Affected by Voltage Sag</b> .....	2180
<i>Jiazheng Lu, Shuyu Chen, Bo Li, Siguo Zhu, Yanjun Tan, Wenhua Liu, Xianghua Zhao</i>	
<b>A Novel Bearingless Switched Reluctance Motor and its Control Method</b> .....	2186
<i>Hao Chen, Zeyuan Liu, Yan Yang, Xin Cao, Xu Wu</i>	
<b>Control Parameters Setting Strategy of Converter Used in DFIG Wind Turbine Considering the Small Signal Stability of Power Grid</b> .....	2192
<i>Yanfang Zhu, Yanbing Jia, Yubo Li, Rongrong Ma, Yingping Xiang, Xueting Cheng</i>	
<b>A Method for Energy Redistribution Applicable to an Island Group</b> .....	2196
<i>Jietao Chen, Daozhuo Jiang, Yifan Yang, Chuang Ruan, Yue Yu, Yi Lu, Peng Qiu</i>	
<b>Small Signal Modeling and RHP Zero Analysis of Tri-state Boost Converter with Different Freewheeling Control Strategies</b> .....	2201
<i>Shaohuan Zeng, Guohua Zhou, Shuhan Zhou</i>	
<b>An Online Fast Battery Impedance Measurement Method</b> .....	2205
<i>Weiping Zhang, Liang Jiao, Xiaoqiang Zhang</i>	
<b>STATCOM Based on Bridge-Type AC/AC Converter</b> .....	2208
<i>Jiawei Lu, Lei Li</i>	
<b>Inverter-less Static Synchronous Compensation Based on Three-level AC-AC Converter for Reactive Power and Harmonic Compensation</b> .....	2213
<i>Zhigang Guo, Lei Li</i>	
<b>Model Predictive Control for Interleaved DC-DC Boost Converter Based on Kalman Compensation</b> .....	2219
<i>Yan Liang, Zehua Liang, Dongdong Zhao, Yigeng Huangfu, Liang Guo</i>	

<b>Study of the Effect of Commutation Circuit Parameters on Reliability of Quench Protection Unit in ITER</b> .....	2224
<i>Wei Tong, Zhiquan Song, Peng Fu, Xiuqing Zhang, Kun Wang, Xingguang Hu</i>	
<b>Research on Control Strategy of VIENNA Rectifier under Unbalanced Power Grid</b> .....	2228
<i>Kaiting Xing, Xiping Huang, Guitao Chen, Xiangdong Sun</i>	
<b>Online Battery Impedance Spectrum Measurement Based On Cross-correlation</b> .....	2233
<i>Weiping Zhang, Yanhui Zhang, Xiaoqiang Zhang</i>	
<b>Impedance Modeling and Analysis of Single-Phase Dynamic Voltage Restorer</b> .....	2238
<i>Houkai Zhang, Guochun Xiao, Gaidi Ning, Youyun Wang, Baohui Ma</i>	
<b>A Critical Line Identification Method Based on Probabilistic Load Flow</b> .....	2243
<i>Huiping Zheng, Jinbi Ma, Xiaoqing Han, Liming Bo, Dongjuan Ma, Jie Hao</i>	
<b>Improved Predictive Current Control of Permanent-Magnet Synchronous Motor with Disturbance Observer</b> .....	2249
<i>Mengxue Zou, Shaung Wang, Xue Ding, Mengqi Liu</i>	
<b>A Nonlinear Least Squares Method of Energy Storage Systems for Wind Power Fluctuations Smoothing</b> .....	2255
<i>Shengjun Wu, Jiankun Liu, Xiaodong Yuan, Qian Zhou, Chenggen Wang</i>	
<b>Research on Energy Feedback Control of Synchronous Motor Driven by Load Commutated Inverter</b> .....	2259
<i>Ke Xu, Qiang Gao, Mohen Zhu, Jiabao Kou, Dianguo Xu</i>	
<b>The Influence of Switching Frequency on Outer and Inner Control Loops of PMSM Based on Frequency Response Identification</b> .....	2265
<i>Xuechu Yu, Dong Jiang</i>	
<b>Design of Master Control System for ITER PF Converter System Based on CODAC Core System</b> .....	2270
<i>Shiyong He, Liansheng Huang, Peng Fu, Ge Gao, Guanghong Wang, Zejing Wang, Xiaojiao Chen, Xiuqing Zhang</i>	
<b>Study on Submarine Cable Overvoltage Impact Test Suppression Measures</b> .....	2274
<i>Lei Zhang, Guozhi Chen, Yan Li, Lu Sun, Kai Hu, Yanjie Le</i>	
<b>Speed Control System of Induction Motor Based on Fractional Order Control and Internal Model Decoupling</b> .....	2278
<i>Qun Zhu, Wenting Wang, Hucheng He</i>	
<b>Active Control of Flexible Power Electronic Load Considering Importance Degree in Microgrid</b> .....	2284
<i>Chuanpu Li, Xingong Cheng, Guangqian Ding, Zhijie Zhang, Hongwei Ren, Lisheng Li, Shibo Wang</i>	
<b>Real-time Simulation Realization of Modular Multilevel Converter Based on FPGA</b> .....	2290
<i>Zhiguo Zhou, Qiuling Wang, Ruliang Lin</i>	
<b>A Study on Macromodel of Single-Phase Full-Bridge Inverter Considering Unipolar SPWM and Synchronous Rotating Frame for Improving Model Accuracy and Control Performance</b> .....	2296
<i>Bum-Jun Kim, Sung-Hoon Kim, Jung-Min Park, Won-Sang Jung, Chung-Yuen Won</i>	

<b>Predictive Direct Power control for Three-phase Vienna Rectifier with Simplified SVM .....</b>	<b>2301</b>
<i>Hui Ma, Jingang Zhao, Miao Yang, Yun Lu</i>	
<b>Realization of Fault Detection Platform for Voltage Source Converter .....</b>	<b>2306</b>
<i>Bingsong He, Xu He, Zhiguo Zhou, Chong Qu</i>	
<b>Unified Active Damper Enhances Stability of Multi Inverters System .....</b>	<b>2312</b>
<i>Fei Li, Peng Liu, Wenxiang Zhou, Wei Zhao, Guangrui Shen, Xing Zhang</i>	
<b>Voltage Source Active Damper Applied to Resonance Suppression of Multi-inverter Grid-connected Systems .....</b>	<b>2318</b>
<i>Wenxiang Zhou, Fei Li, Xing Zhang, Peng Liu, Jun Xu, Yang Liu</i>	
<b>Analysis on the Transient Response Characteristics of PSM High Voltage Power Supply .....</b>	<b>2324</b>
<i>Junjia Wang, Peng Fu, Jian Zhang, Yiyun Huang, Rui Guan, Fei Guo, Haozhang Sun, Yu Zhou, Zhiyuan Weng</i>	
<b>Sliding Mode Control of Parallel-Connected DC-DC Buck Power Converters in DC Microgrid Systems .....</b>	<b>2328</b>
<i>Mustafa Alrayah Hassan, Erping Li, Song Chi, Tianhang Li, Lan Cheng, Chenyang Duan</i>	
<b>Power Trading Strategy and Risk Management for Electricity Retailers Considering Interruptible Load .....</b>	<b>2334</b>
<i>Xiaopeng Yu, Xiaofan Lyu, Shuhan Luo, Xuan Zhao, Xu Wang, Meng Yang</i>	
<b>Adaptive Memristor-based PI Control of a DC/DC Converter Non-minimum Phase System....</b>	<b>2341</b>
<i>Yimin Lu, Yangyang Wang, Xianfeng Huang</i>	
<b>Voltage Sag Assessment Considering Relay Protection Actions .....</b>	<b>2347</b>
<i>Wenjie Fan, Xiangning Xiao, Shun Tao</i>	
<b>A Voltage Sag Source Locating Method with Multiple Screening Criteria Considering Voltage Measurement Errors .....</b>	<b>2352</b>
<i>Xiaotong Du, Haotian Sun, Hao Yi, Fang Zhuo, Shanshan Luo, Xinxiang Wang</i>	
<b>Modeling of D-Q Small-Signal Impedance of Virtual Synchronous Generator .....</b>	<b>2356</b>
<i>Shike Wang, Zeng Liu, Jinjun Liu</i>	
<b>Research on Real-time Simulation and Modeling of High-permeability Distributed Photovoltaic Power Generation Clusters .....</b>	<b>2362</b>
<i>Fei Li, Fan Wu, Ming Li, Zhen Xie, Xing Zhang, Jun Xu</i>	
<b>Parameters Extraction Method for Solar Photovoltaic Module .....</b>	<b>2368</b>
<i>Gang Li, Shilin Qiu</i>	
<b>MCSA-based Fault Diagnosis Technology for Motor Drivetrains .....</b>	<b>2372</b>
<i>Delong Lu, Pinjia Zhang</i>	
<b>A Control Strategy for DFIG-Based Wind Turbines Based on the Fulfilment of Virtual Inertia .....</b>	<b>2377</b>
<i>Xiaowen Jin, Zhen Xie, Xing Zhang, Lifan Niu, Xiang Gao</i>	
<b>Lyapunov- and Eigenvalue-based Stability Assessment of the Grid-connected Voltage Source Converter .....</b>	<b>2382</b>
<i>Bahram Shakerighadi, Esmaeil Ebrahimzadeh, Frede Blaabjerg, Claus Leth Bak</i>	
<b>Stability Analysis Method for Interconnected AC Islanded Microgrids .....</b>	<b>2388</b>
<i>Meiqin Mao, Wensong Zhu, Liuchen Chang</i>	

<b>A Hybrid Random SVPWM Method With Full Modulation Ratio of Five Phase VSI</b> .....	2394
<i>Guodong Sun, Guijie Yang, Jianyong Su, Mengle Wang</i>	
<b>Parameter Identification of Controller for Photovoltaic Inverter Based on L-M Method</b> .....	2400
<i>Liuchen Chang, Xun Jiang, Meiqin Mao, Hao Zhang</i>	
<b>Hybrid Active Damping Control Method for Grid Connected LCL Inverters Under Weak Grid</b> .....	2406
<i>Xiaohuan Wang, Qingshou Yang, Hongyang Qing, Chunjiang Zhang</i>	
<b>Energy Management Strategy for 48V Electrical System of Commercial Vehicle Based on Exhaust Gas Thermoelectric Power Generation</b> .....	2417
<i>Xiaotian Chen, Changjun Xie, Wentao Xu, Liang Huang, Wei Fang</i>	
<b>Energy management strategy for super capacitor energy storage system based on phase shifted full bridge converter</b> .....	2425
<i>Lujun Wang, Jiong Guo, Feng Ji</i>	
<b>Research on Modular Stator Permanent Magnet Generator Based on Input-Parallel Output-Series Single Active Bridge Converter for Offshore Wind Farms</b> .....	2431
<i>Kun Wang, Baochang Xie, Xu Cai</i>	
<b>A Compact Three-Port DC-DC Converter for Integrated PV-Battery System</b> .....	2437
<i>Mohammad Al-Soeidat, Habes Khawaldeh, Hamzeh Aljarajreh, Dylan Lu</i>	
<b>Research on Operation and Control of Distributed Wind and Storage Power Supply</b> .....	2443
<i>Yongqi Liu, Chaoyang Li, Huipeng Li, Xiao Chang, Yizhao Liu, Yanbing Jia</i>	
<b>Double voltage rectification modulation for bidirectional CLLLC resonant converter for wide voltage range operation</b> .....	2448
<i>Sheng Zong, Guoxing Fan, Xiaobo Yang</i>	
<b>Hierarchical Cooperative Control for Islanded DC Microgrid Cluster</b> .....	2454
<i>Zhan Luo, Hua Geng, Guorong Zhu</i>	
<b>A Novel Design Method of LCL Filters for Optimal Reactive Power Compensation in Microgrids</b> .....	2459
<i>Zhiding Wu</i>	
<b>A Simple Internal Resistance Estimation Method Based on Open Circuit Voltage Test Under Different Temperature Conditions</b> .....	2464
<i>Qi Yao, Dylan Dah-Chuan Lu, Gang Lei</i>	
<b>Cooperative Control for DC Microgrid with Large Power Disturbance</b> .....	2468
<i>Zhan Luo, Hua Geng, Guorong Zhu</i>	
<b>Design Study of MW Photovoltaic Inverter</b> .....	2473
<i>Cheng Yan, Dehong Xu</i>	
<b>Seamless Mode Transfer Technique for Parallel Grid-Connected Inverters</b> .....	2479
<i>Injong Song, Kyungbae Lim, Junsoo Choi, Jaeho Choi</i>	
<b>Alternate Adaptive Extended Kalman Filter and Ampere-hour Counting Method to Estimate the State of Charge</b> .....	2485
<i>ZhongXiao Liu, Zhe Li, JianBo Zhang</i>	

<b>A Novel Lithium-ion Battery Active Equalization Structure and its Control Strategy Based on Bidirectional Converter Unit</b> .....	2489
<i>Shize Li, Junping He, Zichao Guo</i>	
<b>A Combined DC-DC Converter Suitable for Wide Output Voltage Range</b> .....	2494
<i>Yi-sheng Yuan, Xiang-long Mei, Zhong-yi Zhang</i>	
<b>MRAS Based Online Parameter Identification for PMSM Considering VSI Nonlinearity</b> .....	2500
<i>Genji Pei, Jiayi Liu, Liyi Li, Pengcheng Du, Le Pei, Yusheng Hu</i>	
<b>Performance Analysis of Sliding Mode Position Observer for Marine SPMSM Sensorless Control</b> .....	2507
<i>Zhongxiang He, Zhiqiang Jia, Lei Zhu, Fan Zhang</i>	
<b>Exploration of a Modular Multilevel Converter for Direct AC-AC Conversion</b> .....	2513
<i>Ming Lei, Yaohua Li, Zixin Li, Cong Zhao, Bing Xia, Ping Wang</i>	
<b>A Bidirectional DC-DC Phase-Shift Full Bridge Converter with Novel Modulation Strategy</b> ....	2519
<i>GuoXing Fan, Sheng Zong, Mei Liang</i>	
<b>Dynamic Cost Function Based Predictive Torque Control for Permanent Magnet Synchronous Motor Without Using Weighting Factor</b> .....	2524
<i>Leilei Guo, Kaixuan Zhang, Nan Jin, Lingzhi Cao, Kui Luo, Huaqing Wang</i>	
<b>DC Traction System Hardware Emulator for Rail Potential Distribution in DCAT Traction Power Supply System</b> .....	2529
<i>Lulu Wang, Xiaofeng Yang, Jie Xu, Trillion Q. Zheng</i>	
<b>Power Analysis on DCAT Traction Power Supply System for DC Railways</b> .....	2535
<i>Miao Wang, Xiaofeng Yang, Trillion Q. Zheng, Jingda Gu</i>	
<b>A Development of Electronic Speed Control(ESC) for PMSMs Driving used in Drone</b> .....	2540
<i>Bum-Su Jun, Yoon-Sang Kook, Joon-Sung Park, Chung-Yuen Won</i>	
<b>Fault-Tolerant Control of VSI Driven Double Star Induction Machine for Electric Naval Propulsion</b> .....	2544
<i>Kamal Nounou, Jean Frédéric Charpentier, Koudir Marouani, Mohamed Benbouzid, Abdelaziz Kheloui</i>	
<b>A New Five-Level Power Converter For Switched Reluctance Motor Drive</b> .....	2550
<i>Kexiang Yuan, Mingyao Ma, Zhuangzhi Wang, Rui Wang, Shuying Yang</i>	
<b>Stability Analysis of Bidirectional DC/AC Converter for EV Based on Impedance</b> .....	2556
<i>Shaojian Song, Lei Liu, Xi Yang, Bilian Liao, Yanyang Liu</i>	
<b>Voltage-Sharing Control Method of Series-Connected Bi-Directional DC-DC Converters based on Battery SOC for Hybrid Electric Vehicle</b> .....	2562
<i>Jung-Min Park, Yun-Ji Park, Tae-Hwa Park, Bum-Jun Kim, Chung-Yuen Won</i>	
<b>A Speed Estimation Scheme Based on SRF-FLL with MAF-Based Pre-filter for Speed-sensorless Linear Induction Motor Drives</b> .....	2567
<i>Huimin Wang, Xinglai Ge</i>	
<b>Study on Regenerative Braking Energy Utilization and Power Quality Control in Electrified Railways</b> .....	2573
<i>Haoyue Chen, Yulong Che, Ruiqing Fu, Xiaoru Wang, Xiaoqin Lv, Hongyu Zhu</i>	

<b>Optimized Parameter Design of An Improved LLC Resonant Converter .....</b>	<b>2579</b>
<i>Zuyong Li, Hongjian Lin, Wenjun Mao, Chunjian Cai, Xiaoxiao Guo, Zeliang Shu</i>	
<b>Design and Research of High Voltage Power Conversion System for Space Solar Power Station .....</b>	<b>2585</b>
<i>Lei Wang, Donglai Zhang, Jinpei Duan, Jiannong Li</i>	
<b>A Position Estimate Method For PMSM .....</b>	<b>2590</b>
<i>Xihui Ding, Jianhui Su, Jidong Lai, Qun Peng, Chenguang Zhou</i>	
<b>Double Vector Model Predictive Current Control for the Semi-controlled Open-winding PMSG Generation System.....</b>	<b>2595</b>
<i>Xiaoguang Zhang, Wenhan Zhang, Keqin Wang</i>	
<b>Control of Hybrid Excitation Doubly Salient Machine with Wide Speed Range .....</b>	<b>2600</b>
<i>Weili Dai, Xiaofeng Zhang, Changchun Cai, Yizheng Cai</i>	
<b>An Improved Voltage Model for Closed-loop Torque Control in Induction Motor Drives.....</b>	<b>2605</b>
<i>Yuwei Zhang, Xing Zhang, Shuying Yang, Pengpeng Cao</i>	
<b>Wireless Power Transfer with Additional Third Harmonic: Theoretical Analysis, Design, and Demonstration .....</b>	<b>2609</b>
<i>Hulong Zeng, Fang Z. Peng, Xiaorui Wang</i>	
<b>Performance Comparison of Primary Side PFM and Secondary Side PWM for SS Wireless Power Transfer CC/CV Control Strategy.....</b>	<b>2616</b>
<i>Laskar Pamungkas, Marojahan Tampubolon, Qinghua Lin, Huang-Jen Chiu</i>	
<b>Research on Dynamic Wireless Power Transmission Based on the Independent Control of Transmitter and Receiver.....</b>	<b>2621</b>
<i>Weiping Zhang, Yuanxin Chen, Yuanchao Liu</i>	